The Essence of Architecture

GREELEY

50¢

Digitized by the Internet Archive
in 2024

https://archive.org/details/essenceofarchite0000will

The
Essence of Architecture

THE
ESSENCE
OF
ARCHITECTURE

BY

WILLIAM ROGER
GREELEY

D. VAN NOSTRAND CO. *INC.*
EIGHT WARREN STREET
NEW YORK CITY

COPYRIGHT 1927, BY
D. VAN NOSTRAND COMPANY, Inc.

All rights reserved, including that of translation into the Scandinavian and other foreign languages.

PRINTED IN THE UNITED STATES OF AMERICA

BY THE PLIMPTON PRESS · NORWOOD · MASS.

FOREWORD

IN each age and environment the reaction called Beauty has been accomplished by a distinct group of external influences. "Beauty is tested," Ruskin writes, "not by any fixed standard, but by the chances of association." To the negro the negro is beautiful, to the Celt the Celt, to the Eskimo the Eskimo. Familiarity is the basis of beauty in all its manifestations. Too much familiarity breeds contempt and the appeal of beauty disappears. On the other hand the appeal is never found at all in utter strangeness. That external influence which is in the main familiar but which has an element of the new and strange in it — a touch of surprise — has the chief elements of beauty.

Chinese music when heard for the first time by a Westerner finds no responsive chord, but after many trials, the Western mind becomes familiar with its idiosyncrasies, and a pleasing reaction ensues.

Familiarity with the object of art is one thing. Familiarity with the art itself is quite another. A scholarly acquaintance with an art produces a very marked change in taste. Yet erudition alone is not sufficient to explain the practical universality of this change. If it were, change in taste would stop when progress in scholarly acquaintance with the art stopped. This is not what happens. Senses fed with an unvarying aesthetic formula lose their appetite. A study of the history of art shows that novelty must always be introduced, and that change is as vital and fundamental as any other element in Beauty. The layman remarks that it takes an artist to see anything in the new order of painting. The artist speaks patronizingly of his fellow artist who painted in the mode of twenty-five years ago. By the time the layman learns to appreciate a mode of art expression, the artist has come to deprecate it.

The greatest art in the world is not imitated. Even though it is regarded with awe and admiration, it is not emulated. The Sistine Madonna is acknowledged to be a great master-

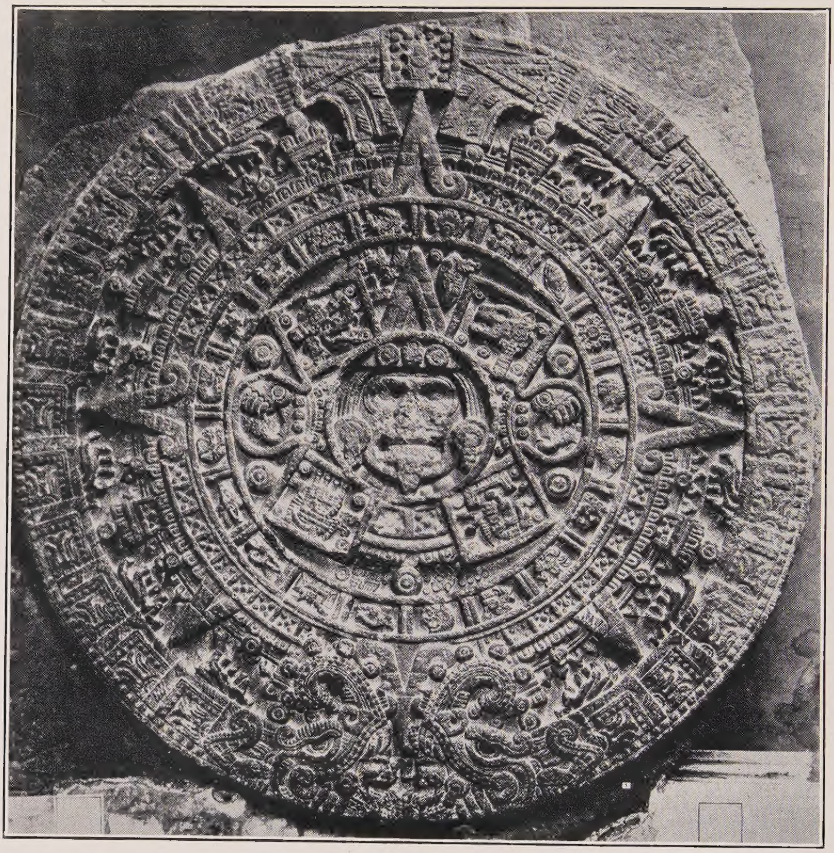


FIG. 1—AZTEC CALENDAR STONE

piece of painting, but no one wants to paint in that manner today.

Shakespeare is the criterion of all that is perfect in drama, but not the model. The mode is obsolete, and we enjoy a new art of the stage.

Our sense of beauty becomes dulled and fatigued by the constant repetition of any aesthetic appeal, just as the eye tires of gazing at the snow, or the ear at hearing a bell toll all day long. Only the supposition that surprise must continually supplement familiarity can account for the constant progression of taste in society or in the individual.

Where a national art has been developed and surrounds the individual from the cradle on, the process of developmental change is not obvious, even although it is constantly present. "The pattern of the hearth-rug is no more to be criticized than the solidity and extension of matter." Nothing furnishes a better example of the effect of adding an element of surprise to an influence already familiar than the change in a girl's features between childhood and womanhood. Familiar as a child she may then be lost from sight, and is next seen when 17 or 18. To the well-known countenance of the girl is added one new element, that of budding womanhood, and the appeal to the sense of Beauty is greatly enhanced. Another example is furnished by the common practice of renovating buildings. A brick church has been painted and repainted in yellow for generations. Following a new impetus in style it is cleaned of its paint, and the brick is revealed. Exclamations of delight result. All the familiar lines are preserved with just a touch of novelty in color and texture.

A generation passes, and by another stylistic impulse the brick is repainted, in white. The effect is instantaneously and universally pleasing. The old has again been preserved in its general aspects but refreshed by a minor innovation. "All things by season seasoned are to their right praise and true perfection."

The terms of beauty are as fluent as the mind itself, and are to be interpreted differently for the inhabitants of Greenland's icy mountains and for those of India's coral strand; for the man of 1850 and for the man of 1925, and as art can be defined only in terms of fickle beauty, art itself can have no fixed canons. As soon as we establish a definite criterion of art, in bursts a new school, outraging our sensibilities, flying in the face of the accepted dogmas and finally capturing not merely our interest but our admiration and approval. "Seen too oft, familiar with its face, we first endure, then pity, then embrace." In its kaleidoscopic journey down through the ages art leads us in a dizzy path like a will-o-the-wisp, yet if we look back, there stand out as landmarks of each stage of the long journey certain great achievements that command always our highest faculties of appreciation.

Certain forms of artistic expression are, in other words, so broad in their terms that they appeal to the normal human mind in many climes in many times. They may possess some characteristics in common. Study of their distinctive elements may reveal some general laws of art, of composition, of proportion. The pages of this book are dedicated to such a study.

W. R. G.

Boston, October, 1927

ACKNOWLEDGMENT

The author wishes gratefully to acknowledge the help of Professor Killam of Harvard in reviewing the text, and the kindness of Mr. F. P. Chambers, Claire College, Cambridge, and Mr. Rayne Adams of New York City, in securing photographs.

CONTENTS

CHAPTER PAGE

Foreword v

I The Arts 1

II The Fine Arts 5

III Architecture 9

IV Elements in Architectural Composition 13

V The Background 17

VI The Purpose 25

VII The Materials 31

VIII Architectural Personality 35

IX Unity 45

X Balance 51

XI Emphasis 73

XII Proportion 87

XIII The Picturesque 93

XIV Ornament 97

Summary 114

Index 117

ILLUSTRATIONS

Mont St. Michel . . . . *Frontispiece*

FIGURE PAGE

1. Aztec Calendar Stone vi
2. "Frozen Music" 4
3. Brooklyn Bridge 10
4. Williamsburg Bridge 10
5. Rheims 14
6. Palace of the Dalai 18
7. Arc de Triomphe de L'Etoile 26
8. Taj Mahal 30
9. Petit Trianon 36
10. Chartres 36
11. The Wrestlers 45
12. Burg Eltz 48
13. Pagoda of Tanjore 50
14. Tomb, Halicarnassus 52
15. Temple of the Scottish Rite, Washington, D. C. . . 54
16. Donjon, Coucy-le-Chateau 56
17. Roman Pantheon 58
18. Elks' Memorial, Chicago 60
19. Winter Circus, Paris 62
20. Bordeaux Theatre 62
21. Plan of Hagia Sophia, Constantinople 63
22. Temple of Love, Trianon 64
23. The Pyramids 66
24. Amiens 67
25. Vista House, Columbia River 68
26. "Pisa's Leaning Miracle" 69
27. Villa 70
28. Baptistry, Cremona 71
29. Pavilion of Music, Versailles 72
30. The Parthenon 74
31. The Colosseum 74
32. Doge's Palace, Venice 77
33. Wood Mill at Lawrence, Mass. 79
34. Beffroi, Bruges 81

FIGURE PAGE
35. Clock Tower, Chartres 83
36. Private Library of J. P. Morgan, Esq., N. Y. . . . 85
From Guadet's "Principles of Architectural Composition" 88
37. Choragic Monument of Lysicrates 90
38. Rotunda, Southern France 92
39. Moorish Ornament 98
40. Moorish Ornament 99
41. New York Telephone Building 101
42. Arc de Triomphe 103
43. Francis I. Ornament 104
44. Transportation Building, Chicago Fair 106
45. Wrought Iron, St. Ouen, Rouen 108
46. Portal, Rheims 109
47. Antwerp Cathedral 112
48. Radiator Building, New York 113
49. Academy of Arts and Sciences, Washington 115

The Essence of Architecture

CHAPTER I

THE ARTS

IN man's efforts to express his emotions in terms of beauty, he has, instinctively at first, then deliberately, developed the arts. First and last the arts cover all fields of human activity. Among primitive men the arts of pottery, weaving, and sculpture existed side by side with the arts of warfare and of cooking. In this sense an art is a science applied. Science furnishes the knowledge, the active use of which constitutes the art.

Starting with this conception of an art as a science in action, we become aware, through the study of history, of the fact that men have always added to the application of their knowledge something outside of the practical elements. Consciously, or more frequently unconsciously and instinctively, they have added to the mechanical task some evidence or earmark of their joy in doing it. The result has been the production of something not wholly mechanical, something revealing a sentiment of the artisan something frought with the power to convey human emotion. It is this quality in anything fashioned by man that we designate particularly by the word "Art." Those branches of human activity which produce nothing tangible remain as "arts" in the simpler and limited sense first described; — that is, the mere application of a science. Among these are the art of warfare, which has no direct product except death and destruction; the art of salesmanship, which produces nothing but income, and all the various arts of distribution and transportation, which produce nothing directly unless it be convenience. These unproductive arts like warfare and salesmanship leave no direct permanent influence upon society. They are temporary aids or hindrances to material existence.

The productive arts go a step further. They express human feeling in more or less tangible and permanent form, and add to human happiness by promoting mutual understanding. They may include all the crafts into which the work of the human hand enters, even in some cases the making of food and other perishables. The production of commodities by machinery permits of very little human expression and this only in the design, not in the fabrication.* It is only the individual human touch in one form or another, that can lend to inert matter the power to arouse in those who behold it the emotion felt by the artist. No machine can fondle or caress its product. The human quality is imparted to clay by the fingers that touch it longingly, linger over its growing beauty, and impress upon it, by patient degrees, the very essence of the artist's dream.

The quality imparted by the human hand under the inspiration of the artist's sense of beauty, has been so far misunderstood that mechanical processes have everywhere been devised to produce effects similar to those resulting from the hand. They have reproduced the imperfections only, and these in a stupid mechanical way. Machines have turned out ten thousand brass coal hods, all alike, and all covered with an identical pattern of exaggerated hammer marks. Oak beams have been shot out of gigantic sawmills, perfect in dimension and smooth in surface, only to be attacked by an adze and covered with awkward gouges to imitate the hand hewn beams of earlier days. The machine masters have thought by destroying the perfection of surface, and making it imperfect, to obtain the same effect that the old craftsman produced when he tried with his rough tools to make the surface perfect. Nothing could be more illogical. Seeking to overcome difficulties and reach perfection produces one result, and it is excellent. Seeking to produce a like excellence by clumsily mal-treating a form of perfection already attained is grotesque folly.

Such slavish and blind surrender to the fad of mechanical aping of the work of the human hand has dragged the minor arts down to a depth of degradation unprecedented in all history.

---

* The design of machine-made articles does however carry a real value with it, especially when developed on new lines to overcome the limitations of mechanical reproduction, and frankly express the "spirit" of mechanism.

We are only beginning to learn that if we must have machine made articles, they must depend upon the ingenuity and cleverness of the designer for their interest, and not upon being mauled afterward by a pseudo-artisan.

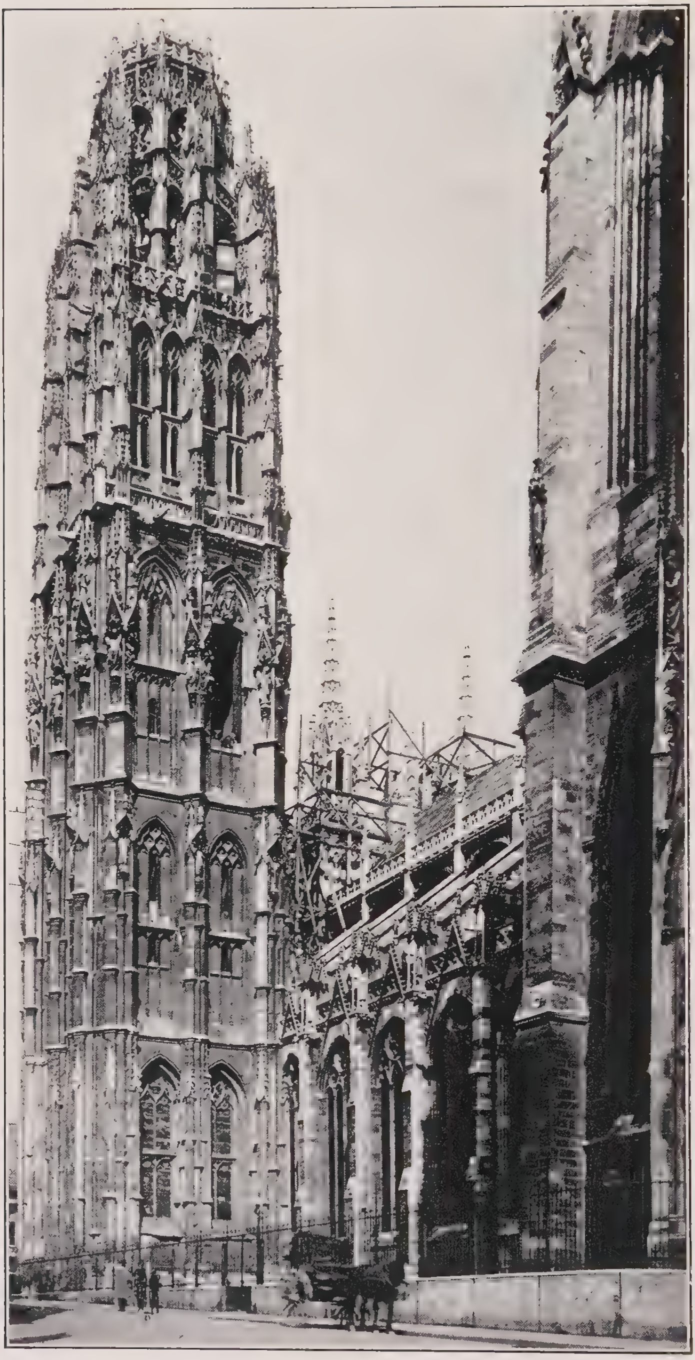


Fig. 2 — "Frozen Music"

CHAPTER II

THE FINE ARTS

FOR one reason or another, among the creative arts a few stand out as of major importance in their cultural aspects, and these are called the Fine Arts. They are not all as pure as the term implies. In other words, the expression of emotion in terms of beauty is not, in every case, the sole purpose of each.

The Fine Arts are Music, Delineation (including Painting, Etching, Engraving, etc.), Sculpture, Poetry, Literature, Drama (and the photoplay) and Architecture.

The Fine Arts may be divided into two groups. Those which depict, represent or describe some natural object or phenomenon and those which do not. The first group may be called the Descriptive Fine Arts and the second the Pure Fine Arts. In the first group are Sculpture, Delineation, Literature (including Poetry) and the Drama. In the second are Architecture, the Dance and Music. Madame de Stael called Architecture "Frozen Music." While the Descriptive Fine Arts, as named above, belong to a single class, uniform in character, Architecture, Dancing and Music do not. Literature is the art of the written word. Every word has a definite meaning, a story to tell to the mind. The emotion is conveyed by the story, with only such rudimentary elements of music as come from alliteration in prose, rhythm and rhyme in poetry.

Painting, – including delineation of all kinds, black and white and colored, pen and ink, etching, lithography, engraving, — resembles literature in that it describes something. It portrays in terms of light and shade on a plane surface some object that is conceived of in three dimensions in space, either a natural phenomenon or an imaginary scene. Purely decorative painting does not belong in this class, and is usually an attribute of some other art, such as architecture or dress.

Sculpture resembles literature and painting in that it describes a natural or imagined object in terms of a given medium.

The media of sculpture are stone, metal, wood and clay. This art employs form instead of words or color. Otherwise it does not differ in character from the other two. It describes the same things by a different mode of expression.

The Song of Solomon translated from words to marble is the Venus of Melos. The sculptured sphinx and the canvas of Mona Lisa ask the same question — one in stone, the other in oil.

The Drama is cognate with these others. Its picture is painted in a larger frame and the people on its canvas move and speak. In the Drama of the Silver Screen the picture is still in two dimensions.

All these, — letters, painting, sculpture, drama — are but expressions of the same urge to imitate nature and portray her beauties, man seizing for his purpose the pen, the palette, the chisel or the rouge.

In another category we find the dance and music and architecture. They tell no story. They imitate nothing in nature, but are Pure Fine Arts. They embody themselves in ideal forms, not descriptive but wholly creative.

The Dance is akin to the Greek gymnastics. It is the Art of Rhythmic motion, in its highest form telling no story, but appealing to the sense of beauty through grace of movement alone.

Free from the physiological stress and distraction of the Dance, music is perhaps the purest of the fine arts. It has no element of description or imitation and no utilitarian factor to limit it. Architecture, while like Music in the former quality, is limited by utilitarian elements. In this respect it resembles the minor Arts, such as pottery and millinery, and a thousand others. It is apparently because of its size and importance and its effect upon civilization that it has been included among the Fine Arts.

Music is an art that makes its appeal to a single one of the five senses. It is possible to conceive of other pure Fine Arts analogous to music, each appealing to one of the other five senses, as music does to the ear.

There may for instance be developed an art of pure color, perhaps combined with an element of form, whereby a symphony of tones, succeeding each other in rhythmic sequence, with a melody of foreground, and background obligato, so to speak, is played to the eye. The kaleidoscope is a rudimentary hint of such an art.

Similarly it is possible to conceive of an art of pure fragrance, of a symphony of odors calculated to awaken the subtlest emotions and reminiscences through the channel of the olfactory nerves, - - "The titillating joys that my nose knows." The scent of new-mown hay may be sufficient to call up in our minds instantaneously the picture of our grandfather's farm and all its June activities of the early days, or a taint of ether may make us shudder with the memory of some moment of agony.

An art of the tactile symphony could be added to the list, a blind sculpture, as it were, a poetry of which braille is the prose. The connoisseur of textures has developed this art to a limited extent. The emotions experienced by him as he touches his cheek to varied surfaces of fine pottery may be classed with those received through the ear in the form of music.

Finally the sense of taste leaves an avenue of exploration for the discovery of a Fine Art of Flavors, a Bibber's art.

When we realize that music alone of these five latent arts has been developed, and when we weigh the effect of music on humanity, we are struck by the overwhelming possibilities still before the human race. * Not only are four out of five of the arts directly related to the senses still undeveloped, but also an unguessed number of compound arts. The biograph, a combination of delineation and drama, is one of this still nebulous group.

* On December 11, 1891, an adaptation of "The Song of Solomon" by Paul Roinard, "Musical Adaptations" by Flamen de Labrely, was produced in Paris. There was an appeal to eye, ear, and nose. Each scene had its particular color in speech and in scenery, its particular tonality in the accompanying music, and its particular perfume. A somewhat similar experiment was made at the Carnegie Lyceum, New York, October 28, 1902. "A Trip to Japan in Sixteen Minutes" was "conveyed to the audience by a succession of odours." This was the "first experimental Perfume Concert in America." The "Trip to Japan" was also described as "A Melody in Odours (assisted by two Geishas and a Solo Dancer)."

The composer Scriabin planned in 1914 to write a symphony of music, words, gesture, color and perfume.

THE AUTHOR.

The list of Fine Arts, therefore, is only a partial list, today, and may be tabulated thus, —

The Descriptive Fine Arts

Sculpture, the descriptive art of form.
Delineation, the descriptive art of light and shade, of which painting is that special branch using color, instead of black and white.
Literature, the descriptive art of the written word.
Drama, the descriptive art of "action and utterance."

The Pure Fine Arts

Music, the pure art of sound.
The Dance, the pure art of motion.
Architecture, the pure art of form.

CHAPTER III

ARCHITECTURE

IN the development of pure art, architecture occupies, among the Fine Arts, a position unique in two respects. First, as indicated above, it is pure in so far as it is non-descriptive, although at the same time it is utilitarian; and, second, it comprehends a variety of elemental arts, unified by the power of architectural composition.

It comprises the art of pure form, which is the distillate, so to speak, of which sculpture is the base. It includes the art of decorative color, the distillate of painting, and of decorative texture, akin to the former. It embraces the arts of iron and brass mongery, faience, joinery, mosaic and smithery in its various branches. It has also developed an art of propriety, in which the materials used have an emotional appeal entirely apart from their color or texture or appearance, but based upon their historical relation to man, or their past associations with certain religious or social customs or ideas.

Architecture therefore has in itself elements of complexity that differentiate it from the other Fine Arts. Music deals purely with sound, painting with color, literature with words, and sculpture with imitative form. The drama combines literature and music with the lesser arts of make-up and scene or with delineation in the biograph; but architecture holds in leash a hundred minor arts and makes them bow to her will and contribute to her creative glory.

Architecture is practical in its principal end, but uses the minor arts to achieve a unique and lasting beauty in its works. Architectural composition must be achieved, therefore, in a practical structure designed usually as a human shelter, by the use of form, color, texture and appropriate materials.

The practical elements constitute a limitation of one kind, and the appropriate materials establish another limitation. In this respect — that it consists of a practical structure, worked

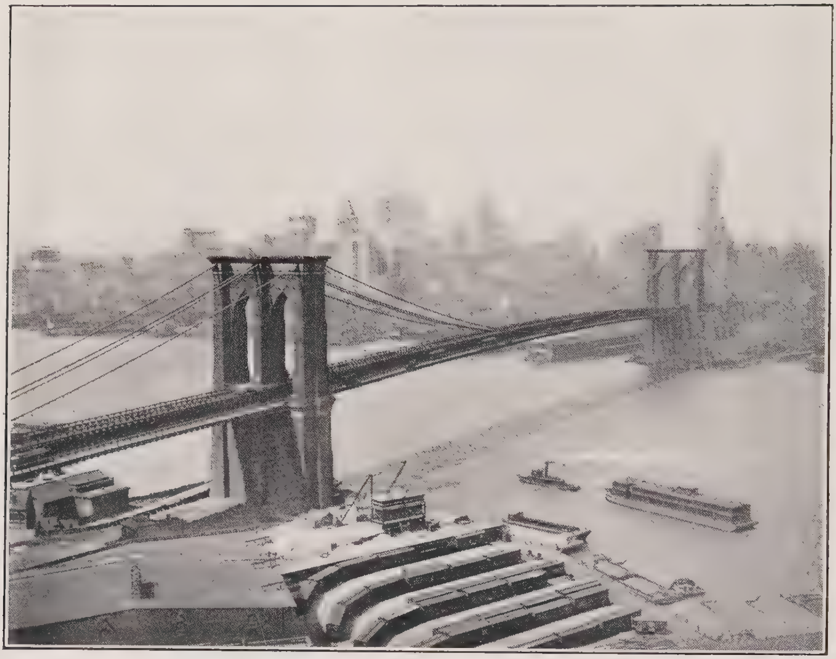


FIG. 3 — BROOKLYN BRIDGE

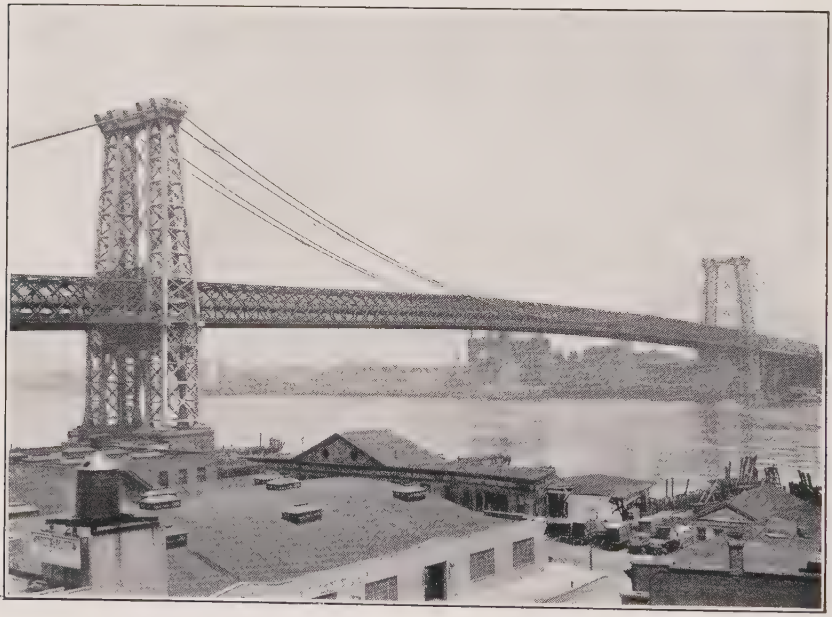


FIG. 4 — WILLIAMSBURG BRIDGE

out in materials that lend it color, texture and form — architecture is not unique, for the same conditions apply to structural building, which we term engineering. Architecture and structural engineering in spite of their intimate connection, are regarded as separate arts practiced respectively by architects and by engineers. In many buildings the engineering is merely a factor in the architectural whole. In others engineering exists independently without any architecture. What is it that distinguishes the two professions? Curtis, in his book on architectural composition, states that "any edifice even though it is of a nature that would ordinarily be determined by purely structural and utilitarian requirements, such as a light-house or a bridge, may properly be classified with the works of architecture, *provided a reasonable prominence* has been given to *external form and appearance.*" This definition at once raises the question, "If architecture is after all only a sophisticated or embellished form of engineering, how can it be classed as a fine art?" If giving "reasonable prominence," whatever that may mean, to external form and appearance converts engineering, an exact science and a practical art, into architecture, a Fine Art, then the Fine Art is only a sophistry. As a matter of fact, the engineering facts and necessities enter into an architectural composition only as one of many practical elements, as the physical properties of pigments enter into the creation of a painter's masterpiece, or the limitations of granite or marble or bronze into the work of the sculptor.

Curtis cites the Brooklyn and Williamsburg Bridges as examples, one of architecture, the other of engineering. The qualities that give the former its distinction are not the "giving of reasonable prominence to external form and appearance. Probably the Williamsburg Bridge had more attention paid to its embellishment than the Brooklyn. It was worked out in cold blood, with every conscious effort at design, structural and otherwise, while the Brooklyn Bridge was a great adventure, done in a certain exuberance of creative enthusiasm. Then again, it happened that stone was used in one for the great supporting piers, steel in the other. Stone has always meant strength and solid unbending resistance, steel has not. So that we can say that the spirit of creation has something to do with the form, and that the historic significance of materials, forms, and colors has much to do with it also. It is complex. Beauty in the structure results from a purpose to create, on the part of the architect or engineer. It may possibly result, as an accident, from purely mechanical design, but ordinarily emotion must first be put into a design if the design is to produce emotion later on.

Man has groped for ages for a definition of beauty, but in vain. Plato called it the "visible form of good." Keats called it "truth." These definitions have a certain practical suggestiveness, but they are not of much assistance in the study of architectural composition. If beauty is truth, truth beauty, engineering is a Fine Art and the stock reports and tax bills are poetry.

CHAPTER IV

ELEMENTS IN ARCHITECTURAL COMPOSITION

THE statement has already been made that all manifestations of beauty change with the changing aspects of man's experience and growth, and that no final precepts can be laid down governing creative design in any Fine Art.

Architectural composition is no exception to this rule, but is most illusive in its complexity and its stylistic cycles. If there were a formula for architectural composition it would have been used by able architects in every period of history. The truth is that in many periods no great architecture has been produced. Great architecture is not the creation of individuals. It is the crystallization in three dimensions of ages of practice in the use of specific building materials, to accomplish specific ends and under the impetus of exultation in the development of new forms. A period of great architecture comes to a race or a civilization as true manhood comes to an individual.

Architectural composition must be studied first in the broadest sense. To begin with, before the individual composition can be conceived at all, its background must be known and considered, for background is as vital to an architectural monument as it is to a human individual. It furnishes no small part of the inspiration needed to move the artist's mind to creative effort. Whether the artist stands in the Egyptian Desert, or among the Swiss Alps, makes all the difference in the world in the character of the building that he will conceive. His background may be an Indian jungle, or a rockbound island of the north. He may be called upon to design a church for the sunny slopes of the Sierras or for the bleak headlands of a storm-swept coast. His artistry may devise a mud-built flat-roofed dwelling for the Mesas of Mexico, or sparkling pinnacled habitations to crown the towering Aiguilles of France or perhaps only an endless row of perpendicular parallelopipeds to be called

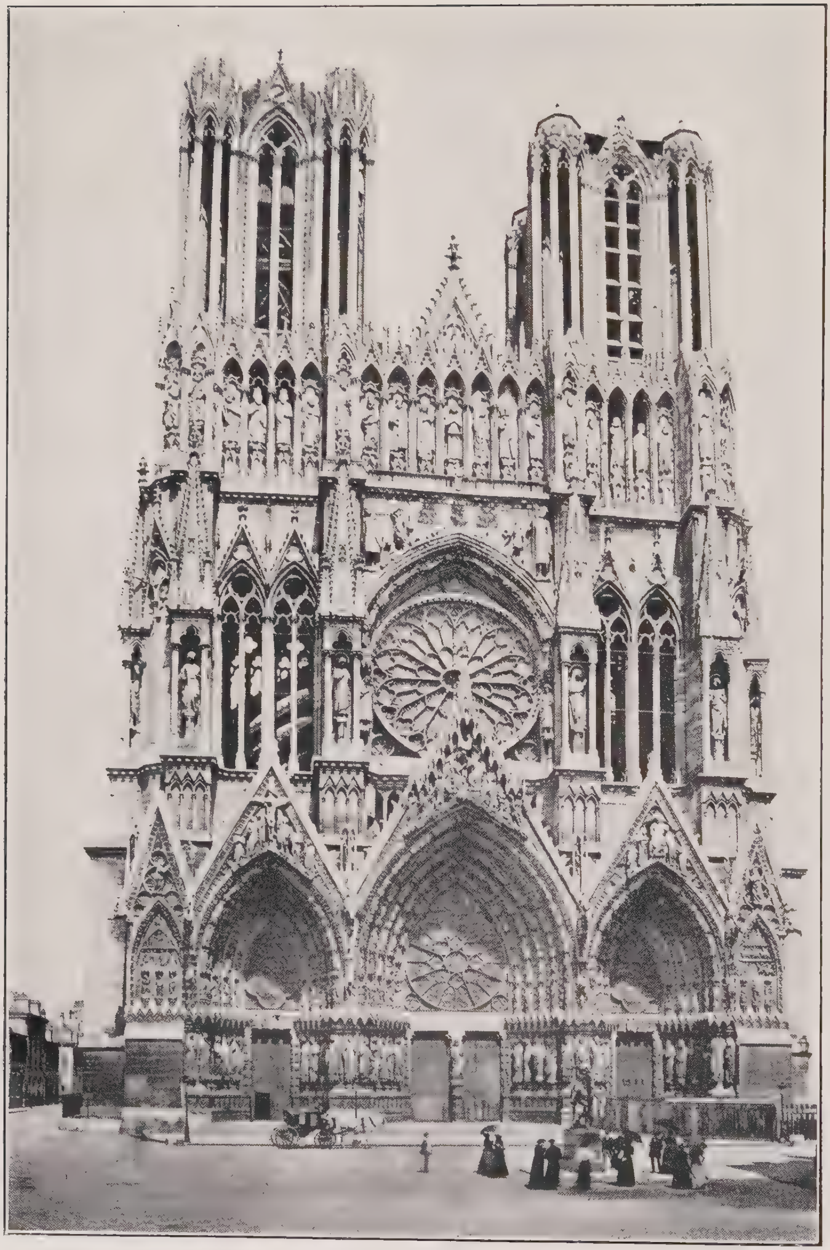


Fig. 5 — Rheims

the homes of the well-to-do citizens of a modern metropolis of the United States of America.

These are some of the purely physical backgrounds.

Beyond this consideration of the physical are the social, racial and stylistic backgrounds. The house of the democrat and the house of the aristocrat are two different houses. The bank on Fifth Avenue and its branch in Harlem are two different bank buildings. The villa of the speculator can be distinguished with little pains from the country seat of the gentleman.

And as social distinctions are built into masonry and wood, so the tastes of the different races affect the architecture that each employs. As if this were not complicated enough, the situation is further involved by the constant rotation of the styles. In one generation architects think in terms of Gothic, in another of Classic, in another of Neo-Grec, in another of Romanesque, and then in all together. No two ages think or see alike.

These influences of physical and geographical setting, of social, historical and stylistic environment constitute that very important element in composition, and the first always to be taken into consideration, — namely, background. Given the background, the remaining elements that enter vitally into composition are found in the structure itself. Aside from the frame there is only the picture.

Among the elements found in any architectural design, the first is "unity," or coherence. Unity is essential not only because it is implied in the statement "any architectural design" which means any one architectural design, but also because it is only by a unified appeal that the attention can be agreeably flagged and the sense of aesthetic enjoyment be focused upon an object of beauty. If there is not unity there is distraction or a struggle to comprehend the disunited phenomenon.

There is no difference of opinion upon this point. All authorities agree that unity is essential to any work of art.

After unity comes the element of balance or rhythm. It is necessary that a building be poised firmly upon the ground. The leaning tower of Pisa, if its excellence be taken for granted, is an exception. Almost invariably a building that is not obviously firmly set upon its foundations is a failure. There should be a balance of such nature that the underparts are visibly stronger than those next above. The crowning features should be the lightest in aspect. This gradation of parts is a question of balance and shows a natural distribution of forces. Aside from the gravitational balance there is axial or lateral balance. A building should not seem to turn. It should have a well-marked front or principal direction.

These are the major considerations of balance, and they are intimately associated with the minor aspects which have to do with rhythm.

After unity and balance comes the need of emphasis or interest. Perfect unity and perfect balance leave the mind inattentive. They provide something easy to look at yet not compelling attention. Emphasis added to the other two is salt in the porridge. It gives palatability.

A further consideration of these general elements of composition, — extrinsically the background and intrinsically unity, balance and emphasis, — is required to define their meaning as precisely as possible, and illustrate their significance.

CHAPTER V

THE BACKGROUND

THE background to which we have referred in the preceding chapter as embracing geographical, historical, stylistic and social elements, while not a part of architectural composition, holds the same relation to it as the soil to the plant, or the home to the child.

Proper regard for the background goes far toward ameliorating defects in the architecture itself. If architecture is indigenous it is likely to be good. Conversely, if it is exotic or anachronous it is likely not to be in the first rank.

Geography is the first element of background. In its extreme or exaggerated cases we are familiar with its influence upon architecture. We recognize certain properties of form and color that tend to make a building conform to the environment of the desert. Other factors dominate the building that is perched on a mountain side. Still others give character to the house in the snow, or to the dwelling perched on stilts in the river. These are outstanding geographical extremes. When it comes to the ordinary residential country of the temperate zone, there is more need for careful study and discrimination.

Ruskin divides the "natural territory" of the "villa" into two kinds, the cultivated or "Blue" country, and the wooded or "Green" country. The former he divides into "Plain" and "Picturesque."

In discussing the principles of composition as applied to the Plain Blue Country or farm land, he advises the architect to avoid anything that may seem affected and to keep comfort and utility always in view. He explains that in a country where agriculture is the chief occupation, ostentation or unwonted individuality is to be avoided. The architecture, like the country, should be simple, durable and useful. He even reasons out the materials and colors best suited for these quiet farm communities.

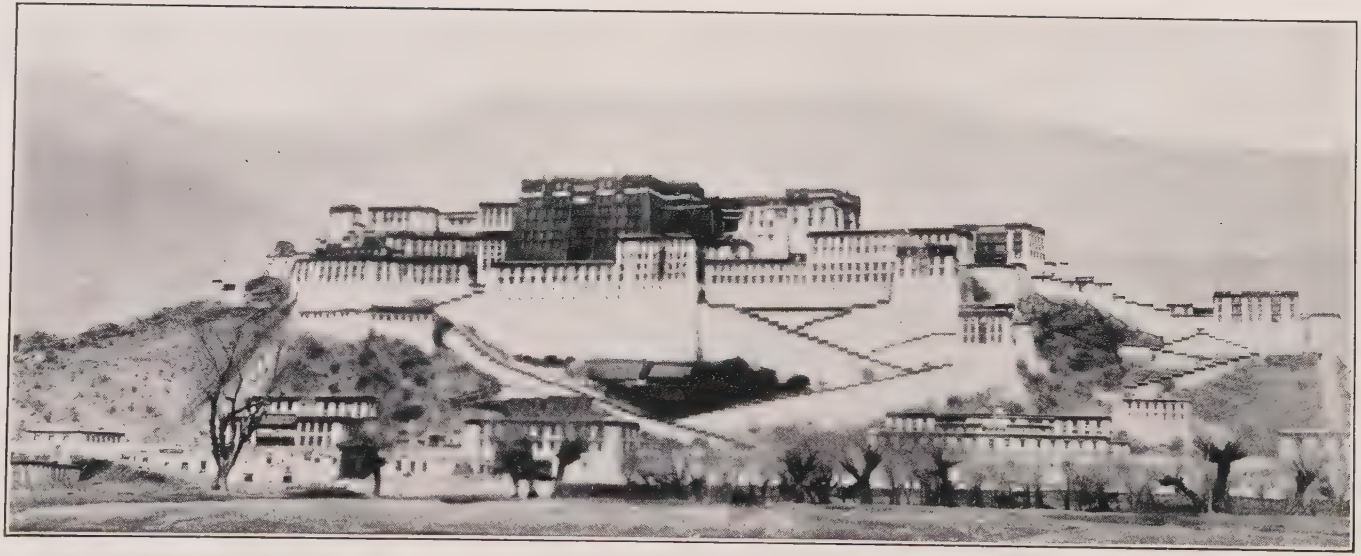


FIG. 6 — PALACE OF THE DALAI

In relation to the "Picturesque" or undulating blue country, which he calls mysterious, graceful and voluptuous, he argues another set of architectural attributes, corresponding to these geographical characteristics.

Similarly he defines the idiosyncrasies of the woods or "Green" country and the accompanying architectural requirements.

Another background he names the Hill or "Brown" country, and lays down the rule that a site be chosen where the house will spoil the least and where it will gain the most. "No one having any pretensions to be called a human being would build a house by the farm of La Haye Sainte or on the lonely isle on Loch Katrine." "However intrinsically beautiful the edifice may be, it should assist, but not supersede; join, but not eclipse; appear, but not intrude." This is the acme of success.

It is notably exemplified in such buildings as the pueblos of the desert, the towering mass of St. Michel * off the shores of Pontorson, the Palace of the Dalai at Lama, Thibet, the Fortress of Chillon, Bamborough Castle, frowning citadel on the sullen cliffs of Northumberland, or the gay hotels on the sunny beaches of Florida.

This geographical propriety blends into the historical. It is hard for the mind to draw a line between the background of nature and the background of tradition.

Tradition is more exacting of the architect than Nature is. Nature demands a general appropriateness of form and material. Tradition dictates in addition to the large elements, the character of even the minutest details. It determines not only form and material, but style. In this way it tends to create and preserve a local atmosphere. The architecture of India is its own. The landscape of Spain can be recognized as surely by the student of architecture as by the geologist. Nowhere in the world can the English countryside be recreated, nor the picturesque flatness of the Low Countries.

Observance of the Historical background and the amenities of Local Style enriches the earth by the development of strongly individual localities, each saturated with its own tradition and genus loci.

*See Frontispiece.

Tradition plays an important part in architectural design, and yet there is no more controversial subject than that of "Precedent." Precedent in a broad sense might be described as that which comes before. It is our historical birthright, and like some other birthrights may be sold for a mess of pottage. Hubert Ripley was thinking of this when he said,

"Early to crib,
Early to rise."

Professor Boring writes, "The testimony of all history indicates that art forms grow like living things. They evolve from the simplest rudimentary ideas and forms, slowly changing to conform to changing environment."

To those who believe in the uninterrupted evolution of the simple into the complex in the physical world, in civilization, in the arts, in architecture, precedent must be studied in the light of history. If history is of any value, and if human nature in one age resembles that of the preceding ages, we can determine what effect precedent is having upon architecture today by reviewing the past and noting what effect it has had in other times.

Stated in general terms, the question may be, "At any given time in history, what is the effect upon its architecture of the architecture preceding that time?" Greece furnishes an example. Precedent, to the Greek was vital. In each age he copied what had gone before. He allowed tradition to dominate his work, even to the sacrifice of logic and practicality. Shaft, cap and cornice were false impressions in marble of half-forgotten timber construction. One temple resembled another, with seldom a radical or novel design, but with imperceptible successive refinements. So by strict adherence to the dictates of precedent, varying little within narrow limits, illogical in detail, and clumsy in construction, the Greek style gave to the world the Parthenon!

Rome tells a similar story. Each age developed new modifications of the old column and arch, endlessly repeated.

The 15th century plagiarized Rome.

The builders of the Middle Ages followed tradition in the gradual development of Gothic architecture. No monument differed greatly in style from its predecessor.

Then came the experience of a double tradition. The Renaissance and the Gothic met, and new complexity resulted.

At the close of the 19th century came another new experience — not a double tradition this time, but a multiple one. Man harnessed fire and lightning, and by them saw the earth. He ate of the tree and knew all styles, all periods, all traditions. From that time he has been like a child rubbing his eyes to see whether he were awake, and like Aladdin rubbing his lamp to call new wonders into being. He has played familiarly with Classic and Gothic, with Moorish, Hindu and Egyptian.

This in itself would be test enough of his artistic poise, but along with it has come another disconcerting condition. Old methods of construction have been transformed over night into a new engineering code. Masonry walls which had always expressed but a single type of stress — compression — are suddenly called upon to add the language of tension. With the steel frame to do the real work, stone becomes a surface ornament or a protection against fire.

Here is indeed a challenge to the bewildered architect! How should it be met? In the face of a new law of construction and new demands in the size, height and form of buildings, should the architect try to cut loose from the past, and, disregarding precedent, begin again and attempt to create a new art founded solely on self-assurance and logarithmic tables?

Shall it be Babel, again?

Or shall he yield himself gracefully to the inscrutable laws of evolution, and, although inclined to roam, do as the Romans did, and the Greeks, and the Goths — stick to precedent, and let the new style develop, by imperceptible additions, as the crystal does? If he does not so yield himself gracefully, he shall yield none the less, for there is no other way in nature or in art.

> "The passive master lent his hand
> To the vast soul that o'er him planned."

As architecture develops from age to age, the driving force is genius — the genius of the race, or the genius of the individual expressing his race and time; but the language in which this creative force speaks is "precedent" and if this language were discarded incoherence would result.

No masterpiece of literature was ever injured because it was written in an old and familiar language. The newest tale can be told in the oldest words. In the art of painting there has been in recent years an attempt to paint in "private code." This game has entertained a few, but remains a curiosity rather than a contribution in the field of art. To use precedent is universal practice. To distinguish between its proper and improper use is really only to distinguish between the sincere and the insincere architect, or between the artist and the time server. What great artist was ever injured by precedent?

Precedent is the strength of the strong and the snare of the weak, and as such must always work for an evolution toward the best results.

In any art precedent is a basic element. Whether it is plagiarism or not in any given case is a question not of art at all, but of ethics.

Architecture should stand on a parity with the other Fine Arts in the world of plagiarists. Other arts are practiced in conformity to the same laws of aesthetics and ethics. Among men of letters who is a greater artist or a greater plagiarist than Shakespeare? In music, Dvorak, in his *New World Symphony;* Tchaikowsky in his *Overture "1812"* ; Flotow in *Martha*, and a hundred others great and small have gone even so far as to use the very melodies of other composers, but without offense.

If the "gift without the giver is bare" it is no less true, conversely, that the theft without thieving is fair.

No great artist is ever successfully imitated. Art can find expression only through individuals, and the individual cannot express beauty through the mere imitative use of forms developed by others.

An artist is always a Midas, whose touch gives a new aspect and value to the old borrowed form. To the extent that he is an artist, to that extent will he necessarily color and transform all that he touches.

Then why discuss the merit of Gothic architecture in America, when there is none? Why lament the prevalence, in our art, of styles not indigenous to our soil nor expressive of our modern civilization? There are no such styles. There are no Egyptian, Greek, Roman, or Renaissance buildings in America. Even the Spanish architecture is not so much Spanish as Mexican.

Alberti might have stopped, during a lull in his career, to ruminate upon the sad state of the profession in Italy, in which every architect was slavishly measuring the old Roman work and trying to recreate it. But we know now, and he may have known then, that there was no cause for anxiety, for we recognize in the Italian reaction toward Romanism a new and virile art as distinct from the Roman as Shakespeare was from Chaucer.

A master cannot plagiarize if he will! Art is the expression of emotion, and no one can express in the form of art an emotion not felt by himself.

There never was a renaissance of an old art. What is called a renaissance is not a rebirth, but a new birth.

An art, like an artist, can be born but once.

Precedent can be judged from still another point of view. Reminiscent art may be indigenous or exotic. It may be anachronous or "of the period."

Precedent is good insofar as it promotes the development of indigenous style in the various corners of the earth. Such a process makes the earth rich in variety, giving to each section its own dialect in the language of universal beauty. Precedent is bad when it stifles a growing mode of expression and slavishly prolongs a style that has lost its significance and virility.

Above all, in any given locality, new needs must find new terms of expression. As with language, new words must be developed, new phrases, new idioms; but the new must supplement the old rather than supplant it. The vehicle of expression must not be shattered, but refined and renewed.

Among the elements of background is the social character of the people whose life is being expressed in architecture. Their culture must color the art. Their wealth, even, must find its reflection in buildings that they create. For a Queen to have built on the side of a mirroring lagoon, a dairy house for amusement is permissibly bizarre and playful. For an American millionaire to cause to be constructed out of steel and concrete, by union labor, a half-million dollar farmhouse, painfully rural and designedly crude and rough in every line, is a travesty.

Not only in dwellings, but in commercial, industrial, ecclesiastical and educational buildings, social habits and moods can be reflected and expressed. The great ruins of the Middle Ages tell of overlords and serfs, of devotion and fear and cruelty. For a modern democracy to mimic chateau and fane is to deprive them of any suitable background, and leave them in ridiculous relief against unsympathetic and unharmonious surroundings. To discover a huge mediaeval cathedral in New York City is like running across the Venerable Bede in a "one armed lunch." Notre Dame in Paris rises out of the turmoil and rush of the metropolis, a revelation and a memorial of the great past of the city over which it broods. Not a stone but has its story, not a vault but has echoed to the great masses of many ages. The Cathedral and the City are inseparable. Not so the modern tour de force in New York. It does not rise naturally as a product of the life force and aspiration of the people. It reflects foreign and discarded forms and is pedantic, not spontaneous; reminiscent, not prophetic.

So, in creating any work of architecture, it is first essential that the background should be firmly established in the artist's mind. His work is poor indeed unless based upon knowledge of the geography, topography, orientation, nationality, traditions and social standards of the locality which it is to enrich.

If it is in harmony with this, its background, its faults may be overlooked. If it fails to blend naturally with its environment, its intrinsic merits of design will not save it.

The building, the site, the country side, the traditions, the purpose, the style, all enter into the composition.

> "All are needed by each one;
> Nothing is fair or good alone.
> I thought the sparrow's note from heaven,
> Singing at dawn on the alder bough;
> I brought him home, in his nest, at even;
> He sings the song, but it cheers not now,
> For I did not bring home the river and sky; —
> He sang to my ear, — they sang to my eye."

CHAPTER VI

THE PURPOSE

ARCHITECTURE and music, although they are the two non-descriptive fine arts, are not alike in respect to their purpose. That of music is to give delight, or at least to stir or soothe the emotions. The aim is single.

That of architecture is to serve a definite practical end in such a way as to ennoble that end and give delight thereby. The aim is two-fold, as in the crafts and minor arts. There is a union, at least, of two elements, utility and beauty. The exceptions are obvious, — the architectural monuments of pure form, — serving no utilitarian but only an emotional end. They constitute the purest examples of the art — the essence, distilled, as it were, from the forms of utility. They are inspiring even to name; — the Choragic monument of Lysicrates, Cleopatra's Needle, the Column of Trajan, the Arc de l'Etoile, Stonehenge, the Lincoln Memorial, and a hundred more!

The purpose of a building with respect to its architectural composition, is an element in the background of that composition and therefore a thing that must be reckoned with. If a building fail of its purpose, it cannot be said to be a wholly acceptable composition. As a work of art of any kind is an expression of emotion in terms of beauty, the expression of that factor of the emotion involved in purpose is essential to the fullest artistic achievement.

To be completely successful, the building must in some degree at least express its purpose, as well as serve it. A railroad station must appear to be a railroad station as well as function like one. Even if the purpose is not vividly expressed in the structure, we may at least say confidently that a railroad station should *not* look like a library or a State capitol.

Similarly a bank should not look like a jail, nor a church like a stock exchange. Yet conversely, a stock exchange, in a country which makes its dollar say "In God we Trust," may

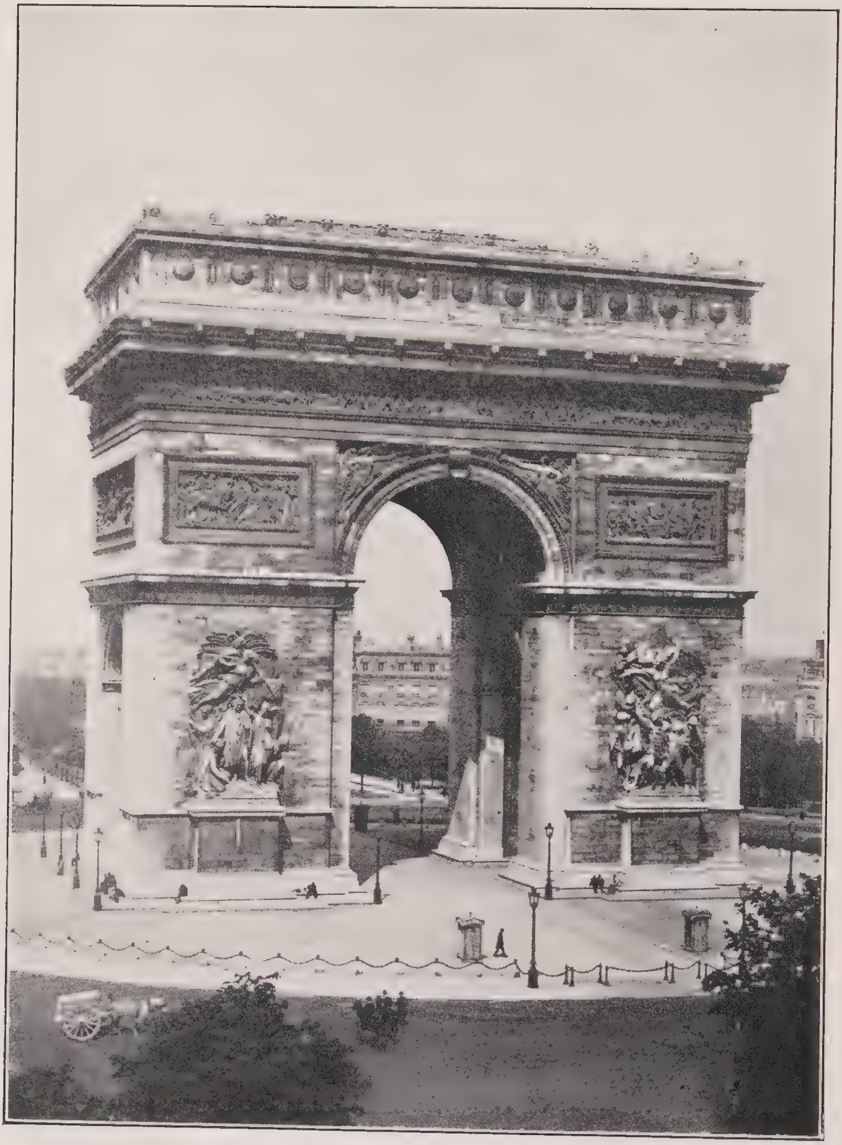


Fig. 7 — Arc de Triomphe de L'Etoile

assume the ear-marks of a church, and there may be some sanction for designing a railroad station, a building which is to house throngs of moving people, in the form of a Roman bath.

It is not an idle emphasis to make in this day, that stealing one building to perform a function foreign to its nature is bad architecture. With photographs of the buildings of all times and styles at our elbow, we pick out a good type and use it for some strange new purpose. It has been suggested by one recent writer on architectural composition that the expression of function often leads architects into the use of stereotyped designs. If a bank is to be designed, it is made to look like other banks that have already been designed. In this way it soon becomes possible to recognize a bank from its resemblance to a type established by usage in a given locality. The tendency is strong to follow this propensity until the type of design is in fact stereotyped and perhaps dry and uninteresting with over repetition.

Such a process is not in any true sense the expression of function. It is merely the development and preservation of specific conventionalities. It is a form of advertizing, and is reduced to simple terms in the chain store architecture of America. A certain corporation painted all its drug stores, whether in Maine or New Mexico, in canary yellow. Another company finished all its lunch room interiors in the Tudor style. Every ten cent store in America is vermilion. This is a mode of publicity. It enables the public to recognize the proprietorship with ease. It is not, however, an expression of function in terms of architecture. It is a trade-mark.

To express the function of a ten cent store in architectural terms is to embody in the building the features that are adapted to the needs and uses of merchandizing small articles of negligible value. It means usually a street facade one story high, in materials indicating economical management and moderate overhead costs. It means display windows and ample ingress and egress. It means a large undivided floor area with maximum facilities for counter display and circulation. Counter display requires abundant light. Circulation requires ample lanes or aisles, with floors that are not only of durable material, but easily kept clean.

To express these facts that constitute the needs of the building is to express function.

Of course there are types of buildings of which the function is not physical, but psychological or inspirational. The Taj Mahal* has no function to perform except to bear witness to the pure and undying love and devotion of a man for a woman. It serves its purpose well. It is a brilliant and gracious tribute to woman — to her daintiness, her refinement, and her fastidiousness. It sparkles with her utmost charm, and is timid with her blushing diffidence. While it reflects her vanity in its silvered pool, it no less faithfully voices her prayers and aspirations in its ascending minarets. Having but an emotional service to render, it renders it in terms of significant and symbolic beauty.

There are buildings, too, that serve a practical end but at the same time must appeal to man in a specific emotional sense. The church must not only express the various functions of housing a congregation, but it must make a deep and compelling appeal to the soul of man, bringing home to his consciousness the vitality, dignity and mysticism of religion. A city hall expresses function not only when it presents a well-ordered group of public offices, in a convenient and compact building, but also when it emphasizes with dome or cupola, pediment or colonnade, the fact that it is the seat of the firm, stable and commanding power of community self-government.

These considerations of purpose and function would seem trite were there not so many buildings that have been designed to seem what they are not.

"Search antiquity," says a great student of architecture, "and you will not find a building — not a single one, mind you — of which the interior and exterior are not the reciprocal consequence, rigorous and necessary, one of the other. Its form, expression, essence evoke in you an impelling sense of the inevitable. At the same time there is usually great beauty, but beauty of composition not of artifice.

Such is perfect art."

When a building is purposeful it will hold its own against many an ill-conceived or ill-adapted design. The American mill* of the "eighteen seventies" is an example. Adapted in every respect to its uses, shorn of non-essentials, bald in its practicality, purposeful, it would almost seem, to the exclusion of architecture, a mere engineering proposition, it remains the only meritorious architectural achievement of that decade!

---

*See photo on p. 30.

Purpose is back of all design. It is no accident that these two words are synonyms.

Our sense of beauty is allied to our sense of fitness.

What is fit is good.

What is good is in harmony with life.

What is in harmony with life while it may often not have in itself the emotional appeal of beauty, always lends itself to the hand of an artist.

Utility gives to architecture its first and greatest sanction. That building which is sound in its mechanics and suited to its proper uses is proof against criticism and will command respect through successive generations, becoming mellower and more pleasing as indulgent time traces its story upon it.

*See illustration, p. 88.

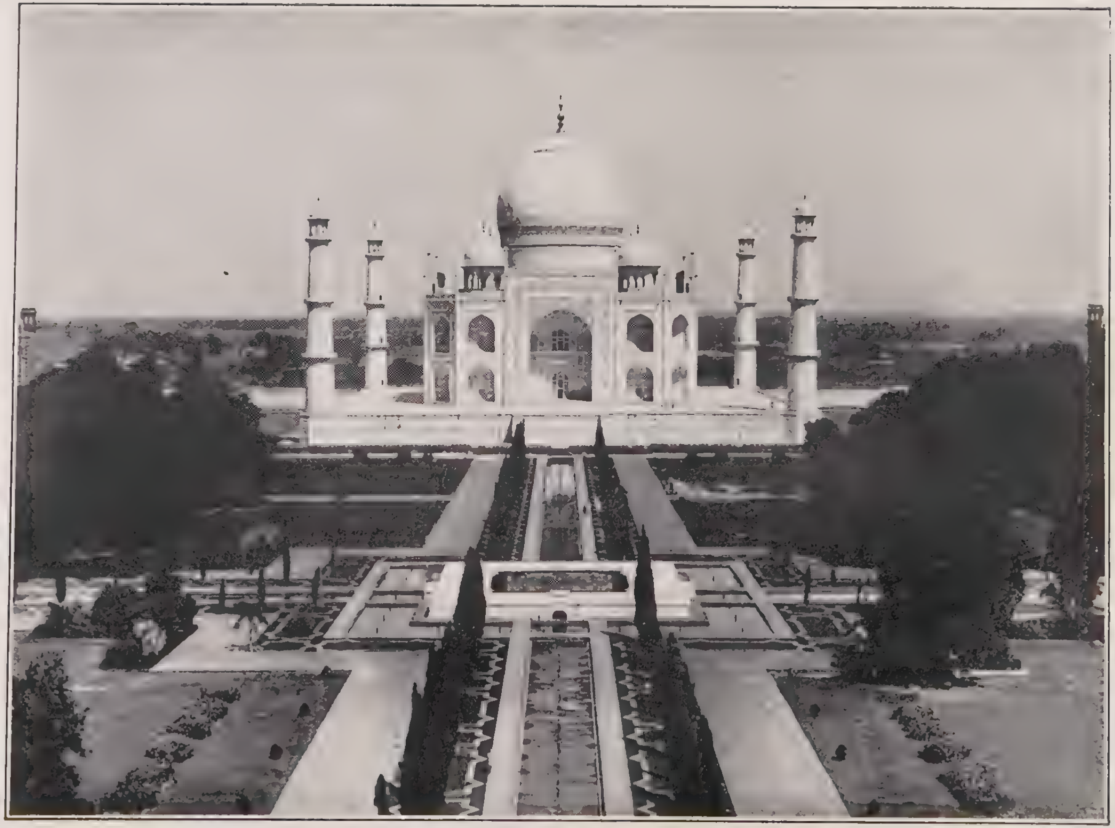


FIG. 8 — TAJ MAHAL

CHAPTER VII

THE MATERIALS

GIVEN the background, and the proper expression of purpose, the next essential is the material. The site, the historical and social factors and the purpose are predetermined for the architect, in most cases. The material is not. It must be specified, and is an important part of the design. It determines the color, texture and scale of the various parts.

It does more. There is a propriety of material arising from association and convention. Some materials are esteemed noble, some are rated as coarse and mean. Psychology enters very deeply into the choice of iron or brass, marble or concrete, oak or ash. One governing principle in this psychology of materials is so universal in its operation that it merits careful notice.

It is a matter of common observation that the appeal of mineral matter, as such, to the eye and imagination of man is comparatively slight. A landscape or a seascape is not of interest as matter, and its appeal is quite dissociated from the material of which it is composed. We do not gaze out upon the ocean as a marvelous solution of sodium chloride. The sea appeals to us for quite other reasons, for the associations that have made it romantic, the ships, the far-a-way lands beyond the horizon, the cool fresh breezes and the constant change and restlessness, simulating life.

Until it has been worked by the hand of man, or has otherwise shared the influence of life itself, material does not thrill him.

The value of material to man is directly proportional to its own life experience. Substances that have had a simple and merely mechanical history are comparatively unprized, while those that have lived through vital periods of change and transmutation are strong in their appeal to man.

Among minerals, the metals stand conspicuous as examples of material that has had no prolonged life history. They have cooled and solidified and then remained inert until refined and worked by man. Iron as it occurs in nature has little nobility. Neither have the other metals. Even a nugget of gold is without appeal, unshapely, and an object to satisfy curiosity and cupidity only. Refine it and work it and the same gold finely wrought has much beauty, borrowed from the craftsman's hand.

Iron is the dominant metal today. Ours is the iron age. When poured from the furnace it cools and crystallizes into cast iron. In this form it is useful, but little prized in the arts; but let the armorer forge it with well directed blows into an embossed shield, or the smith fashion it into the tracery of a massive swinging gate, and iron is common no longer.

In the arts stone is the most used of the minerals. Classified according to the theory of life history, it represents an interesting study. A few instances give an idea of its important place.

Granite, for example, has a short history; whether a crystallization of molten earth-minerals or a coating of incandescent cloud particles picked up in space, its story as we know it is limited to inorganic chemistry and physics.

It is a building material of great durability and considerable beauty. Whether in the heavy construction of Egypt's temples or the soaring grace of the monastery of Mont St. Michel, whether in the classic lines of the Boston Public Library or the gaunt pylons of Brooklyn Bridge, it finds a high place in the arts. It is hard and sound and lasting. What rivals has granite?

Limestones, early in their career, were living tissue. They originated as beds of shells. A block of Caen stone is composed of myriads of once living shellfish. Man chose this material for the cathedrals of France, in which the aspirations of humanity found a supreme architectural expression.

Marble has a similar history. Formed of once living shell, like limestone, it has had added life. Subjected to the purifying processes of heat and pressure, and again solidified in clear crystalline form, it stands as the most prized of the building stones.

When the most cultured civilization yet recorded turned to its architects for temples to express beauty in consummate form, these Greek architects chose marble as the material best fitted for this lofty purpose, and when the sculptor in his art wished to embody beauty in perfection of form he selected marble for his work. The Hermes of Praxiteles, the Aphrodite of Melos, the mighty works of Phidias, all needed marble for their perfect expression.

If our theory searches for a more highly organized material used in the realm of sculpture, the chryselephantine statue of Zeus himself, the greatest of Greek gods, suggests itself as bearing out the principle, by the fact that ivory is used for its finer parts.

Thus sculpture and the minor plastic arts make use of clay, terra cotta, bronze and other metals, granite, limestone, marble and ivory. That roughly is the order of their acquaintance with life, and that roughly is the order of their esteem in these arts.

Among woods there is a similar progression of value from simple to complex. There are quick-growing soft woods that furnish the lumber of commerce, spruce, hemlock, pine and poplar. There are slow-growing hard woods that serve more noble ends in the arts, — ash, oak, mahogany, teak, ebony, rosewood. Among these are individual trees that have buffeted the storm, have outlived their kind by superior stamina, or have otherwise been through wider experiences than the common tree. These are the prized specimens.

The maple that has fought off the attacks of insidious enemies is, among maples, first to win man's admiration, for he chooses the battle-scarred bird's-eye for the place of honor. Other and ordinary maples, of easy life, he uses for common purposes — for floors and for implements, — keeping the bird's-eye for fine furniture.

As another illustration take the oak. The oak of commerce is cut from a forest in which all trees are alike, growing with tall regular boles, each protected from the storm by its neighbors. The wood, if cut with great care along "medullary lines" yields the "quartered oak" of the roll-top desk.

Look now at the finer oaks. English oak is the most highly prized for handsome finish. In England every "English oak" is numbered. There is a "Who's who" published for wood fanciers. When a tree is cut the fact is advertized, and bids received. These oaks are "pollard" oaks. A pollard is a dehorned stag or beeve. The oak has been similarly shorn of its great branches. It has struggled to regain its strength and symmetry, and as a result of these unusual vicissitudes, its life thereby enriched, its wood is valued by man at fabulous prices.

No poet sings of chestnut, but oak is worthy of his pen.

When man would fashion an instrument of music nearest in tone to the human voice, expressing more emotion in concord of sweet sounds than any other mechanical creation, he makes a fiddle, using for it three things; the finest wood seasoned with infinite pains, and wrought with supreme skill and cunning; strings of highly organized organic structure; and a bow of horse hair! And so above the horn of brass and the flute of silver and even the melodious organ of wood, we prize the violin — the instrument worthy of the skill of Stradivarius — the instrument with a human voice.

Architecture makes use of a multitude of different substances. Each must be carefully chosen for the particular building in question, both for structural service, and for aesthetic qualities. Be it remembered that the latter includes many elements. It includes the consideration of local tradition and production, of the purpose of the building, whether noble — requiring marble, or, like the Columbian Exposition, bright but ephemeral — requiring staff. It includes the elements of color, texture, and weathering characteristics.

This matter of choice of material turns upon the subtlest properties of material and its associations with local traditions and even with prejudices.

An architect, therefore, must know his locality, what it produces for building use, and what the elements of design in the building require for material realization.

CHAPTER VIII

ARCHITECTURAL PERSONALITY

THERE are four principles governing architectural composition that deserve particular and careful analysis to the end that composition itself may be better defined in the mind of the student. These are Sincerity, Propriety, Style and Scale. Each effects composition in its own individual department, and each effects it in conjunction with the others. Sincerity cannot be wholly dissociated from propriety, as in any given instance propriety is instinctive with the architect, and departure from it would be disingenuous, involving lack of complete sincerity. Style and propriety are obviously interrelated. The analogy of modes in wearing apparel is sufficient to illustrate strikingly this relation. Violation of scale implies not infrequently insincerity, impropriety and a disregard of the demands of style. With respect to Sincerity there is no argument. All agree that it is essential. It is important only to discover what is meant by "Sincerity." It sounds good, but what is it in architecture? Brick and stone are not sincere nor insincere. Cubes and spheres, roofs and walls have nothing to do with "sincerity" or its reverse.

Sincerity in relation to the composition arises not from any physical or mathematical quality, nor from any rule of proportion. It results from the frank and reasonable acceptance by the architect of the conditions of the particular problem. If he is able to grasp the undertaking with seriousness and with conviction, and devote his talent to its solution with a single purpose and without ulterior motives or ends, the composition will be sincere. If on the other hand, he is not wholly serious, and approaches the problem in a dilettante mood, or with any purpose other than the creation of good architecture, or if he tries a tour de force bent upon startling people into recognition of his originality or individuality, the work as a composition will undoubtedly lack sincerity. Sincerity, therefore, is not so much

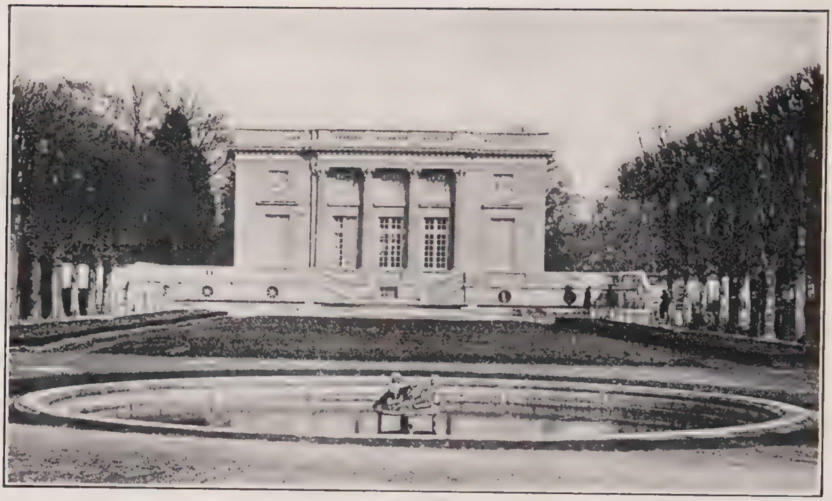


Fig. 9 — Petit Trianon

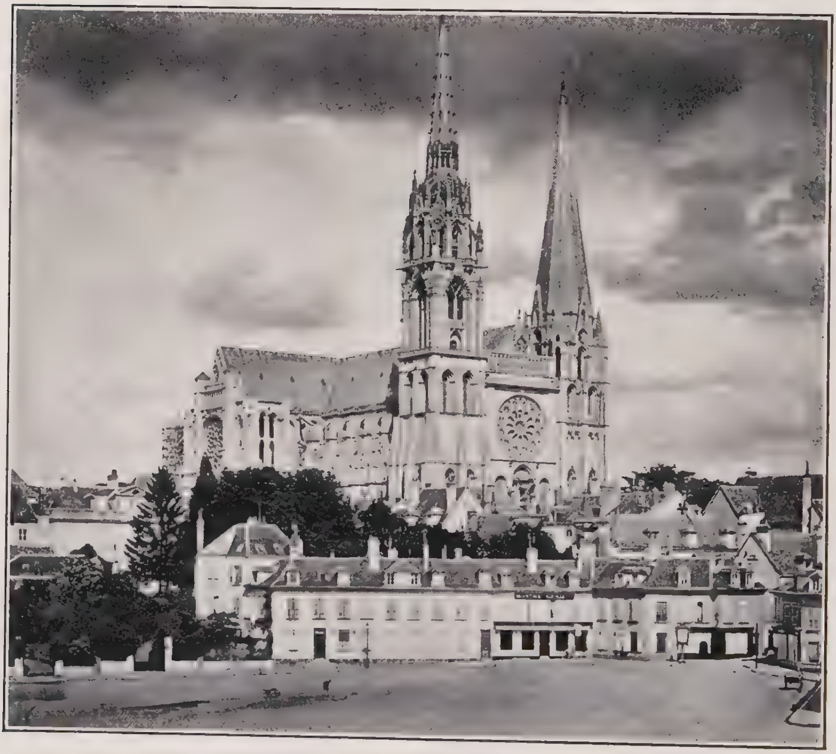


Fig. 10 — Chartres

a characteristic that can be formulated and analyzed by rules of composition, as it is a quality pervading certain work as a result of the personality of the artist. The most rigid discipline of mind and will and the cultivation of a habit of straight thinking alone can endow an artist with the power to produce work that rings with sincerity. If you know your man you can say at once whether there is a possibility of his creating architectural works that will be "sincere." Sincerity in the structure does not imply that each member of the building shall exhibit plainly its structural nature. There is one truth connected with structure, another connected with use, another connected with emphasis, and it may be important to let one or the other dominate the design. For, to take an example, a cottage roof is so essentially a protection against the weather, that its best architectural expression is as a protecting surface and not as a structural feat. To express its framework would disturb the emphasis upon its more important function as a weathertight and watershedding surface.

Similarly a floor, while important as a piece of construction, is first of all, to anyone who sees it, a place to walk or stand upon. As such its best architectural expression is as an interesting and appropriate surface, and not as a supporting framework.

In both these cases the construction is concealed so that it will not interfere with the expression of a more important property of the architecture, namely the *use*.

Sincerity expressed in a building does not require that every decorative feature or ornamental accent shall convey a structural message. Ornament does not need any authorization from the engineer of the building. "Beauty is its own excuse for being." To adorn a building does not imply insincerity. If the manufacturing plant of reinforced concrete, naked in its simplicity is sincere, so is the most ornate Gothic cathedral. In sharp contrast in character, the pinched, thin-trimmed colonial house, and the lavish splendour of Versailles meet in the field of sincerity.

Sincerity and insincerity are one thing; complexity and simplicity another. The Washington Monument is simplicity itself, the Eiffel Tower most complex. Yet both are wholly sincere.

The varying types of buildings exhibit varying aspects of sincerity. A church, a playhouse is interpreted in the light of the purpose served by each. Just as the very essence of drama is make-believe, so the house in which it is found may, by the flippancy of its design, most truly portray and advertize the purpose for which it is built. A "showy" design may well express a "show." Such a conception of architecture for a church building would, of course, be offensively inappropriate. Sincerity cannot be measured by an inflexible rule, but consists in the frank and reasonable acceptance of the conditions of each particular problem.

Looked at subjectively, sincerity in the architect is characterized by a high regard for his profession, a strong devotion to work, and a deep enthusiasm with regard to each problem of design that he undertakes to solve. Although a creative genius, he will have more of the point of view of a discoverer than a maker—of beauty. His regard for his profession strengthens him to resist the temptation to secure through tricks and tours de force a temporary personal advantage. His strong devotion to his work frees his mind from the desire for short-cuts and plausible effects. His enthusiasm carries him through each problem to sound conclusions and a true solution.

Such attributes in the architect give to his work the quality that we call "sincerity."

The hand that rounded Peter's dome
And groined the aisles of Christian Rome,
Wrought in a sad sincerity;
Himself from God he could not free;
He builded better than he knew;—
The conscious stone to beauty grew."

Although overlapping the concept of sincerity, propriety *still occupies a large exclusive field* in any consideration of good architecture. It was not insincerity but impropriety that characterized the proposal of a certain architect to use the design of the dainty pavilion of music at Versailles for a public convenience station in his city. It is impropriety that mars the use of a tall, top-heavy tower, copied from a sumptuous palace of the Italian Renaissance, to commemorate the landing of the English Pilgrims upon the bleak, low lying sands of Provincetown. Such a use of such a monument is the very quintessence of impropriety. It is improper from every point of view. To take a tower that originally was flanked and supported by a large and substantial building, and balance it, unbraced, upon the top of a shifting mound of sand is bad enough. To attempt to express the intense sobriety and rugged faith of a consecrated band of Pilgrims by the use of a machicolated turret representing a period of Italian prodigality is an unspeakable architectural faux pas. The monument is foreign not only in spirit but in form, as it reflects no tradition even remotely associated with the Pilgrims, either in their English homes or their temporary environment in Holland. It offends not because of insincerity, but because of its glaring impropriety.

Through use, or evolution, certain forms or types have become associated with certain buildings. A house, at least in colder climates, signifies shelter, and this idea of shelter has come to be expressed by a sloping roof. If we construct a cottage with a flat roof, we offend this principle of propriety. This is true even if a flat roof happens to be a more sincere form to use. In this case the consideration of propriety is stronger than that of sincerity. We are so accustomed to associate the pitched roof with the idea of proper shelter for a house that we demand such a roof, regardless of its extravagance and inutility.

We have insisted that a bank should look as inviolate as a tomb, although the resulting design may incommode the clerks working in darkened areas within, and may not affect the safety of our moneys in the least. Here there is a balance yet to be struck between propriety and sincerity.

As a further illustration, the many forms of the cupola, and the spire are interesting. A spire on a schoolhouse is unknown. A clock tower on a private house is a breach of propriety. A town hall with a tiny cupola is an object of derision. A barn with a glazed turret could not pass muster even among abandoned farmers, and who would apostrophise an eyebrow in a church roof?

Propriety limits the use of the spire to a religious building. It would be just as beautiful on a school, but for the impropriety. The spire is associated with aspiration, and things of the spirit.

It points to Heaven. In its finer forms it points penetratingly and as it were exultingly to Heaven.

The obelisk is vertical, also, and it tapers; but it does not point. It sticks up proudly, emblem of generation, from generation to generation. In our own capital it commemorates the Father of his Country.

The tall chimney-stack is vertical. It tapers. It does not point, however. It does not rise proudly or calmly. It vomits fitfully. It belches smoke and stands for the passing of hot air and sulphurous fumes. It may be in certain cases picturesque, but hardly a proper motif to dominate a fine building.

Propriety is not a fixed or absolute quality. In architecture as in other arts it changes with the point of view. It is beginning to be considered perfectly proper to design a bank with abundant light and air, rather than like a vault. Meanwhile propriety demands that a bank express security at the expense of utility.

Window blinds and lace curtains are proper elements in house design and so are generally used although the blinds may be a useless expense as far as practical needs go, and the curtains an agent for collecting dust. In an office building, however, propriety does not require these two elements of design, and a cow-barn prohibits them. It is all in the point of view.

There is a propriety akin to consistency. A marble building with wooden trimmings may fulfil all the other requirements of the art, but not propriety. There is even a propriety of respect. If the marble walls of a building admit dampness, and must somehow be made tight they will not be painted, as a wood wall is, or as sometimes a brick wall may be. If waterproofing of any kind must be applied, it will be a waterproofing that is invisible, out of respect to the marble.

Ironwork is usually painted black. Pink or yellow is not respectful. Good ornamental ironwork is wrought, out of respect to the metal, which is tough and signifies strength. If cast, iron is little better than cement, or plaster, or brass. It is brittle and coarse, and commonly corrodes. Bronze is more properly cast, because it is fine and takes the mold perfectly, and yet is tough and enduring. So although iron is cheaper than bronze, what is a respectful use of bronze is not as worthy of iron.

There is a propriety of location. The surroundings qualify a building. Local materials, styles, methods of construction, and traditions should all be considered. The same banking accommodation in London, Paris, New York and Tokio will require varying architectural expression in the varying localities. In a town where granite is quarried, a school building of this material will pass as proper, while it may seem ostentatious in a community located far from a granite country in a brick territory.

This propriety of location involves the consideration of the size of the building as well as its style, color, and material. In a small city where there are no buildings of more than six stories in height, and where the civic centre is marked by rising ground upon which is located a city hall or state capitol of moderate proportions, a wealthy corporation builds a thirty story office building. It may be admitted that this building is faulty in scale in a certain way, although the scale of its openings, etc., may be identical with that of neighboring buildings. This fault is a minor one. The chief error is one of propriety. Such a building stands as an affront to the whole city. It is deliberately conspicuous at the cost of all other property. It is an architectural bull in the china shop, smashing all values to show its own brutal exuberance of power. Once built it remains, a cruel insult to the city's taste, bully among buildings. Its proud preponderance is like that of a cabbage or a cornstalk in a pansy bed, but it is condoned and even justified by an age that regards size as a virtue, and effrontery as one of the cardinal principles of advertizing.

Good architecture will take heed of the general well-being and beauty of the neighborhood, seeking to enhance rather than thwart it. We call this element "civic" propriety.

If having sincerity and propriety the building has not style it is poor indeed. It may be sincere; it may be proper; but without that thorough observance of traditional purity or unity of form that is called style, it is a mongrel. What a thoroughbred is in the world of animal fanciers, a building with style is to the architectural eye. There is such a thing as "style" in general, and there are the historical styles. There is the Greek and the Neo-Grec, its derivative. There is the Roman and its Renaissance Italian daughter. Less famous as members of this latter family are the cousins in France and England — the French Renaissance — The English Georgian — and, of course, the anaemic overseas niece, the American "Colonial." There are the Norman, the Romanesque, and the Gothic. Spain has its classic-gothic tradition and its Moorish. There is the quaint fashion of the Tyrol, and the picturesque Swiss châlet. There is the Eastern tradition of Byzantium and Russia, and there are the older Ptolemaic forms. No two peoples have ever developed the same style. The myths of the East and the West and the North and the South embody the same stories of the sun and moon and rain and winds, told almost in the same phrases; but a glance suffices to distinguish the architecture of Greece from that of Rome, although the latter was copied from the former. In its turn the Renaissance building produced by devoted students of the Roman Art is as distinct from the Roman in style as Dante is distinct from Virgil, or as Lorenzo is distinct from Caesar. Into this same Roman, the Frenchman, the Spaniard, the Englishman, the Dutchman and the Colonist of North America each worked his character so that no two resulting styles are alike.

The genius of the place is manifest in its style. This quality of "style" is the unconscious characteristic of the architecture, and may be called its "personality."

There are good styles and bad styles. There are buildings that fairly reek with style such as those of the mid-victorian period. Lack of style, however, like lack of personality, is always a fault or a liability. Style is as hard to analyze as personality. There are prominent elements in each historical style by which a building can be classified. But there are subtle qualities, too, defying analysis.

A building in the "Roman style," historically, may be lacking in "style" artistically. Just as a man dressed in the latest "style" may lack "style" if he wears his clothes in a slovenly manner, so a building dressed in Roman motives, may bear these motives in a clumsy and slovenly way, depriving it of "style."

There is no formula for style. To be a master of any style an architect must understand it sympathetically and intimately. Even then he will interpret the historical style, as Brunelleschi did, through his own personality, and the result will be a new cast to the old style. To be the master of a style is a great and scholarly accomplishment. To be a master of "Style" is rarer and greater but is not an accomplishment so much as it is a talent. It means the power to embody personality in the structure.

To complete the elements which give personality to architecture, scale remains to be discussed. Scale is not a simple quality. There is human scale, which is absolute. A flight of steps must be in scale for a man if it is to be used by men, or for a pigeon if it is to be used by pigeons. A balustrade is similarly conditioned with regard to size. If it is twenty feet high, it is "out of scale" as a balustrade. The height of a room, the size of a door, the length of an auditorium are all limited by human scale.

Great size is often impressive. There may be, in a given case, no insincerity in it. It may be proper, it may be "in style" and yet not "in scale" with the human element, or with its surroundings.

The new library in the Harvard Yard is a case in point. It is large: it needed to be. It is large because of a sincere and proper regard for the requirements of the problem. The style is accommodated to the size. Nevertheless it is wrong in scale. It is like a grand piano in a two-room flat. The fault isn't with the piano or the flat, but with the "scale." The Harvard Yard has been established for centuries. Its choicest buildings are all small in scale, — almost domestic. Its area is limited. The sudden intrusion of the great new library building is the same kind of violation of scale as the introduction of a trombone into a mandolin club. The fact that it is a perfectly good trombone doesn't help matters much, nor does the fact that it is well played. To be sure, involved in this violation of "scale" is a violation of propriety, also.

Scale, even human scale, varies with different styles. A French house and an English house differ in scale, although a Frenchman and an Englishman do not. The Romans were small, but their architecture was large in scale. The New Englanders were large and big-boned but their architecture is small and delicate in scale. Into the narrow New England village street lined with this dainty architecture a bank building in the Roman style is introduced. Our sense of scale is outraged.

When a building "lacks scale" it means that the size of the building is not expressed in the architecture. The moon lacks scale and looks different in size to different people. The pyramids lack scale. The largest and the smallest are identical in design, except for the stereotomy. The Educational Building at Albany lacks scale. Its main façade is a strip of movie film of a plate from Vignola. It might be of any size. The scale of a building can be a confused scale. The "popular" American bungalow type is an example. The building itself is small, but the detail is large enough for an office building.

The human trait that corresponds most nearly to the architectural quality "scale" is common sense, or a sense of proportion. Proportion itself is apparently not a governing principle of architecture. It is itself governed by style, scale, and sincerity, if not by propriety. The proportions of the Doric order vary from the temple of Ephesus, with its massive stone shafts, to the Colonial porch with its attenuated colonettes. The mass proportions of a house can be reduced to no formula. In our own Colonial style we have the stately three-story mansion, a compact cube, and the long rambling farmhouse. We have flat roofs on tall houses, pitched roofs on houses so low as to be all roof, and everything between. A twenty story office building would once have been monstrous in proportions, where now it may be deemed elegant. Steel as a framing material is working a revolution in the proportions of openings. The proportions of cornices, story heights, windows, doors, and even rooms are at present being regulated by law. This affects the problem of design, but rather as a special set of conditions to be met than as a governing principle. It is impossible to define or recognize any law of proportion that is not subject to scale, style, propriety and sincerity.

CHAPTER IX

UNITY

IN preceding chapters the elements of background, purpose and material have been discussed. They compose the preliminaries to a composition. They are the conditions of the problem. After they are manifest, the problem of creation begins. The composition is to be erected upon this scaffolding.

Guadet writes, "La composition, c'est la mise en œuvre, c'est la réunion dans un même tout de différentes parties qui, elles aussi, doivent êtres connues dans leurs ressources et dans leurs moyens avant d'avoir la prétention de les composer, c'est-à-dire d'en faire un tout." *

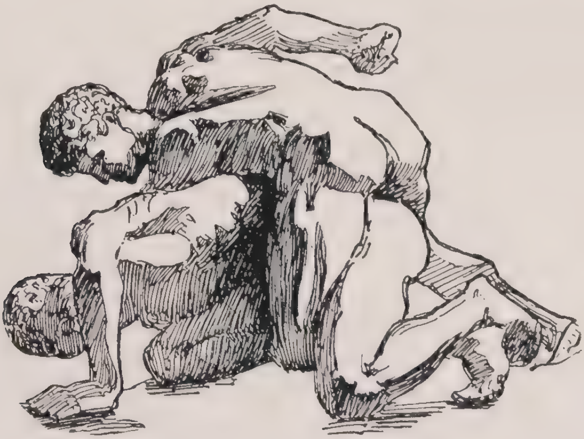


FIG. 11 — THE WRESTLERS

Any composition is a unit. This is axiomatic. Unity is the first consideration connected with design, or composition. Upon this point there is unanimity of view among students of architecture.

---

* Composition is the embodying, the uniting into one whole of different parts which ought themselves to be known in their possibilities and their adaptabilities before the artist should presume to compose them, or make of them a "whole."

There may be some slight diversity of opinion as to what unity means, when applied to an architectural composition. In general unity is a geometrical fact. A mass is a unit if it has a well-defined centre of gravity in a single bulk. An architectural mass is a unit if it has a centre of importance, or of attention in a bulk or mass that is single in the sense that it is undivided, or is so divided as to form an easily grasped geometrical pattern or entity.

A comparison with sculpture is proper. A simple figure usually has unity. Two equal figures usually are not a unity, but in the "Wrestlers" they are so combined as to constitute one mass. The "Laocoön" is a group in which three figures are united into a single composition, but nevertheless verge on disunity. Yet three parts are more easily composed than two. A central element flanked by two secondary masses, or by three or four, forms a composition easily grasped. A major element coupled with one other element is not so easily made a unit.

The tendency to think in terms of the façade of a building instead of the mass is amazingly prevalent and trips up many able students and writers. Books on composition are frequently illustrated by façade diagrams only. Except in contiguous city buildings, the façade is but a single phase of a many sided mass.

In city buildings the façade may be all that counts of the individual building, but it is not the whole composition. Here is a case where the background should be given great consideration but is given practically none. The building is treated as a unit, whereas in reality it is but an incident in an extended whole. The real unit is not even as small as a block, but is coëxtensive with the visible lines of the street in perspective.

Our city architecture has developed in ignorance or in defiance of this vital fact, and is therefore, insofar as considerations of unity go, a failure. The City Street has in this respect followed the same course of growth as the cemetery. The old burying grounds, like the old village streets, had unity. There were but one or two types of design, and but one or two materials. The quaint slate headstones scattered through an overarching grove of pines gave a sense of unity and repose. Then came competition — pink polished granite obelisks, white marble tombs, cast iron angels and doves, and artificial wreaths. The resultant mass displays no unity, no repose, nor other quality that is restful or even endurable.

And so with our city streets.

From the row of simple two-story white clapboard houses and stores, with a point of emphasis in the columnar portico and lofty spire of the white church, we have strayed far afield. The competitive principle has prevailed again. Our Main Street, whether it is Fifth Avenue, or Michigan Avenue, or only Washington Street, Boston, is a hodge podge of vying elements, brick, terra cotta, granite, limestone, and painted cast iron, - in painful disarray. It is as if in music each member of the orchestra should abandon the score and try to drown out all the others in an effort to make himself heard. Even the cemetery, bad as it is, is preferable, because it is smaller.

From the point of view of architecture our American cities have neglected one of the prime essentials of composition, namely unity in street design.

When the time comes that we care more about the general effect of the street, and less about making our little architectural scream of a building heard above the general din, city architecture will have taken the greatest single step in advance in all its history.

In order to secure a fairly clear idea of what unity is, examples from among the successful buildings of history give a clearer idea than can be had by mere theorizing.

Theory on matters of composition usually ends by begging the question.

A recent book on architectural composition, concludes a chapter on unity with the words, —

> "The exact relation of the elements in such a composition *becomes a matter of proportion, and cannot be determined other than by cultivation of the aesthetic sense*,"

and finally,

> "A happy proportion will be such that it appears inevitable and unalterable, and it is therefore indispensable that proportions be unhesitatingly determined."

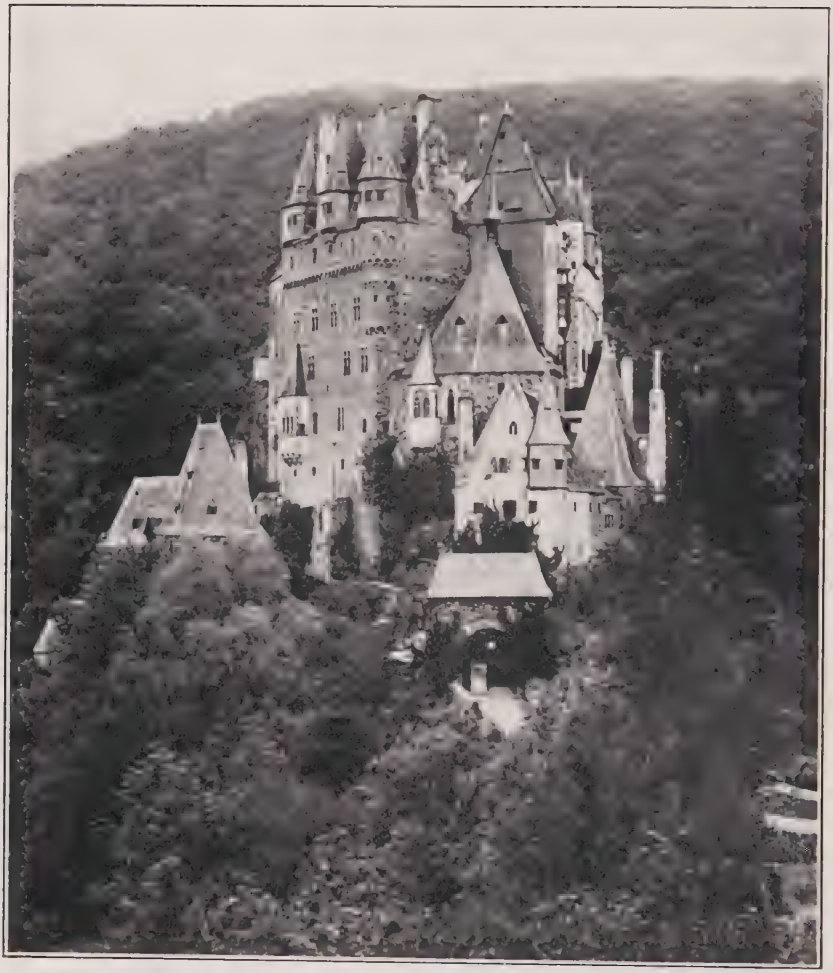


Fig. 12 — Burg Eltz

In other words, "cultivate your aesthetic sense until you know what is right, and then do it unhesitatingly," - which is good advice but tells nothing about architectural proportion.

To pass in review the masterpieces of proportion will help to cultivate the aesthetic sense, more than to attempt to establish rules for a process so subtle and complex as architectural composition.

Behold then, the avenue of the great masterpieces of architecture: —

> Earth proudly wears the Parthenon
> As the best gem upon her zone,
> And morning opes with haste her lids
> To gaze upon the pyramids;
> O'er England's abbeys bends the sky,
> As on its friends, with kindred eye;
> For out of Thought's interior sphere
> These wonders rose to upper air;

Unity meets our eye in every one. The pyramids, the Parthenon, the Pantheon of Rome, the Duomo of Florence, Hagia Sophia of Constantinople, the Taj at Agra,* Halicarnassus,† the great fanes, Rheims, Notre Dame, Toledo, Salamanca, Antwerp, Durham; the monastery of Mont St. Michel,‡ the Burg Eltz; the Petit Trianon,§ the English thatched cottage, the Lincoln Memorial, the Columbia Library, the Mexican church, the Buddhist Temple. Whether from the hand of an Oriental mystic or a western business man, whether built at the very dawn of history or today, whether church or shrine or market, these great masterpieces all possess unquestionable unity. All exhibit marked simplicity in general mass. The exceptions appear to be the cathedrals, some of which are fairly complex, with western towers, lantern or tower at the crossing and semi-circular apse. Their mass, however, is articulated upon a simple and familiar plan and so they are accepted by the eye as a unit, although under strict analysis they stand as distinctly inferior in this respect to the simplest buildings. The Burg Eltz and Mont St. Michel type appear to be exceptions to the rule of simple mass. While in these cases the mass is very much subdivided yet the general outlines are simple, following the natural lines of a hill or crag.

* Page 30. † Page 52. ‡ Frontispiece. § Page 36.

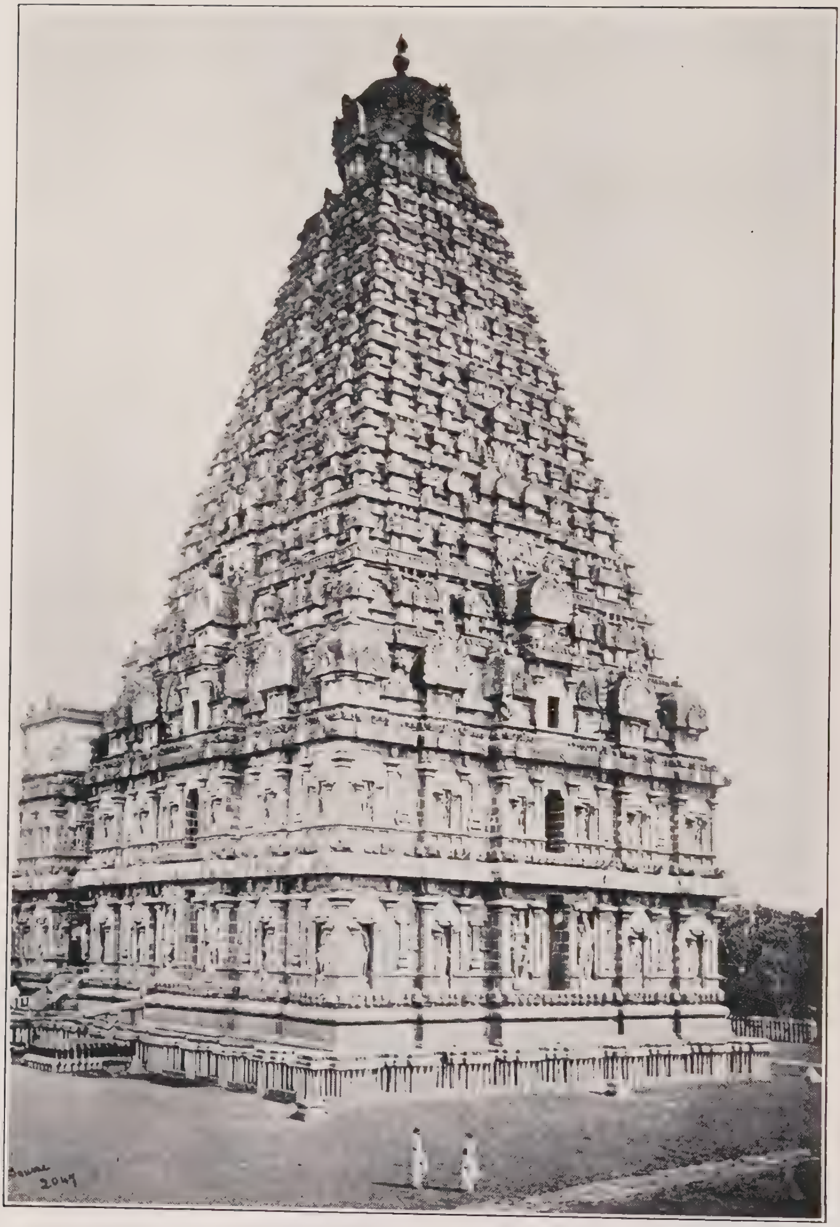


FIG. 13 — PAGODA OF TANJORE

CHAPTER X

BALANCE

IN analyzing the various elements that enter into composition or design, the ancient authors divided the work of the architect into three phases: (1) the disposition, i.e., composition, (2) the proportions, i.e., the study, and (3) the construction, i.e., control of the study by science and its execution.

The disposition of a mass, once unity is admitted, consists largely in "balance," or "rhythm."

Balance is felt primarily in the sense of stability. Firm poise gives to a structure a dignity and propriety that are indispensable. To achieve this noble effect the stability must not only be actual, it must be manifest. There must be a visible adjustment of the building as a whole and in all its parts, to the forces of gravity. This includes a consideration of the proportionment of supporting members to the loads carried by each. Such a relation is expressed by the increasing size of members as the thrusts and loads are passed down from the uppermost to the lower portions of the structure. Where the vertical direction strongly predominates, as is often especially the case in purely monumental architecture, the horizontal direction may not be needed. Where the vertical element is absent, the horizontal balance is essential.

In judging the gravitational balance of an object the trained eye does not act alone. It is supplemented by habits of mind that are deeply ingrained in the subconscious life of the individual.

To the eye alone a tree has no more gravitational balance than a feather duster poised on end. The eye, if it could act independently would tell us that the tree would blow over with the slightest breeze. The child does not know that the tree has roots, yet never doubts its stability. The child's eye accepts the universe as it finds it, and "sees that it is good." The adult mind should be aware of this principle of acceptance of

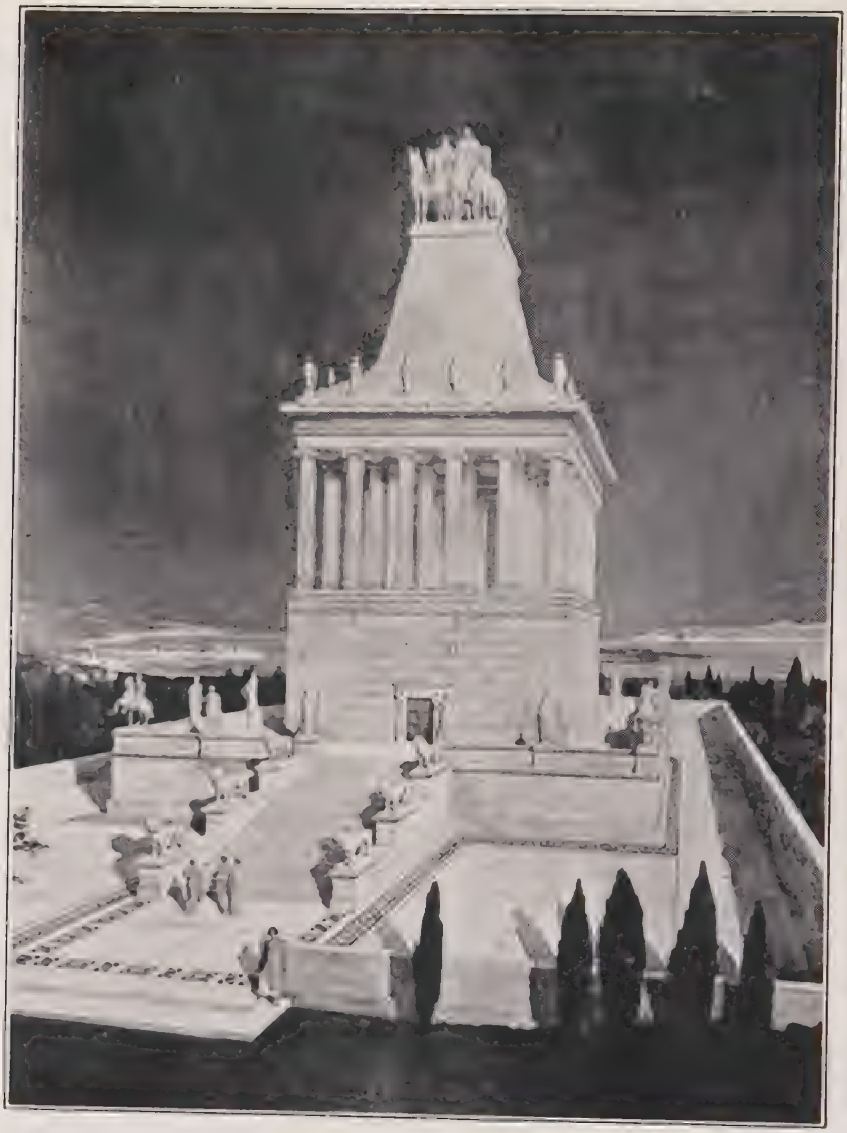


FIG. 14 — TOMB, HALICARNASSUS

what *is* as good. Art is governed, not by abstract principles, but by fixed habits of mind and existing conditions of environment.

Lateral or axial balance is far less simple than gravitational balance, for architecture in its broad scope comprises the picturesque as well as the formal and monumental types of building. Whereas the latter types are expressed in simple geometrical forms — simple or compound parallelopipeds, cylinders, pyramids, hemispheres, and such — the picturesque buildings assume shapes that are often extremely ungeometrical and complex.

The range extends from the pyramids in their formal simplicity to the Burg Eltz, and from the Lincoln Memorial to Compton Wynyates. As far as the architectural composition of the formal group is concerned, it can be said that lateral balance means geometrical symmetry about an axis. When a building is lacking in this axial balance, it either is not formal or it is not well composed, one or the other. Axial balance is an essential of formal architecture. The temples of Egypt, and her tombs; the Parthenon and her sisters scattered through the cities of Greece; the Colosseum, the Thermes, the temples, and later the basilicas of Imperial Rome; Rheims, Cologne, Rouen, Amiens, even Chârtres in its geometrical elements, Notre Dame de Paris, Durham, Lincoln, Salisbury and most of the other great Gothic miracles of architecture; St. Paul's and St. Giles's, the Crescent and the Circle at Bath and the Quads at Oxford, the Bank of England and the House of Morgan, the Paris Bourse and the Summer Palace at Peking, the Taj Mahal, the Lincoln Memorial and the Library at Boston are all perfectly balanced in axial symmetry. They vary within the limits of geometrical simplicity.

Not so the picturesque buildings! To analyze the principles of composition underlying their varying forms is to reduce to formulae the thoughts, habits, traditions, emotions and humors of the peoples of all ages! As an example, the American skyscraper would have struck Callicrates, Vignola or Wren as grotesque in its proportions — a gargantuan joke! The sense of proportion has been gradually modified by progressive changes in commercial needs and structural developments, until the eye has come not only to tolerate but to admire this colossal packing box grilled with rectangular windows.

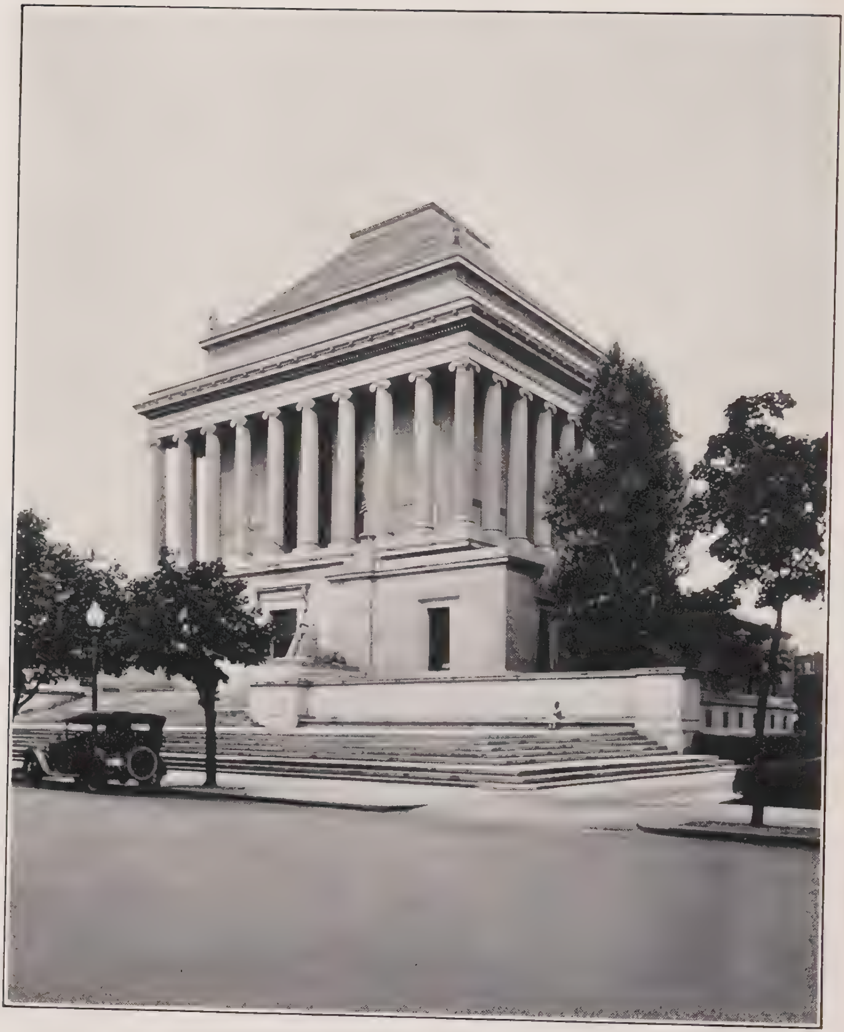


FIG. 15 — TEMPLE OF THE SCOTTISH RITE, WASHINGTON, D. C.
John Russell Pope, Architect

What are the forms that the eye accustoms itself to and what are those that remain always ugly or clumsy in appearance? That is the question. History gives an answer for the past, but no living man can do more than speculate with regard to the future.

Beginning with the simpler geometrical forms and dividing the group categorically according to their ground plan, we have buildings built upon the square, the circle, the polygon, the rectangle, the cross, the quadrangle — open and closed — and the compound rectangle.

The square plan occurs particularly in monumental architecture. It is simple and perfect and isolated. It is dignified and in general severe. This severity is softened by the addition of a crowning dome. In citing instances of the square plan, as it occurs in buildings of importance, ancient and modern, no reference will be made to city-block buildings although they may occupy a square plot of ground. They are essentially façade designs, unilateral or bilateral according as they occur sandwiched in between other buildings or upon the corner of two streets.

The square plan is typified by the building that has four façades of equal width. Among the great landmarks of this particular type of plan are the tomb of Halicarnassus, and its many offsprings — Grant's tomb, the great Pittsburgh Memorial and the Temple of Scottish Rites at Washington. These monumental structures illustrate the severity, dignity, and isolated perfection of the square plan. These qualities are especially marked in buildings like the above, that are not only square in plan, but approximately cubical in mass.

The same qualities are not as strongly marked in the square buildings that are either much less in height than in width or much more. Where height is the predominating dimension, the building becomes a tower, and, while possessing dignity and perfection of mass, secures its effect from its verticality more than from its square plan. A square depressed or broadened may in some cases be required in order to meet the conditions of a city block, a market place, or perhaps some peculiar local demands, but it is essentially a mass ill-adapted to the best light and ventilation. Of this type there come to mind examples like the

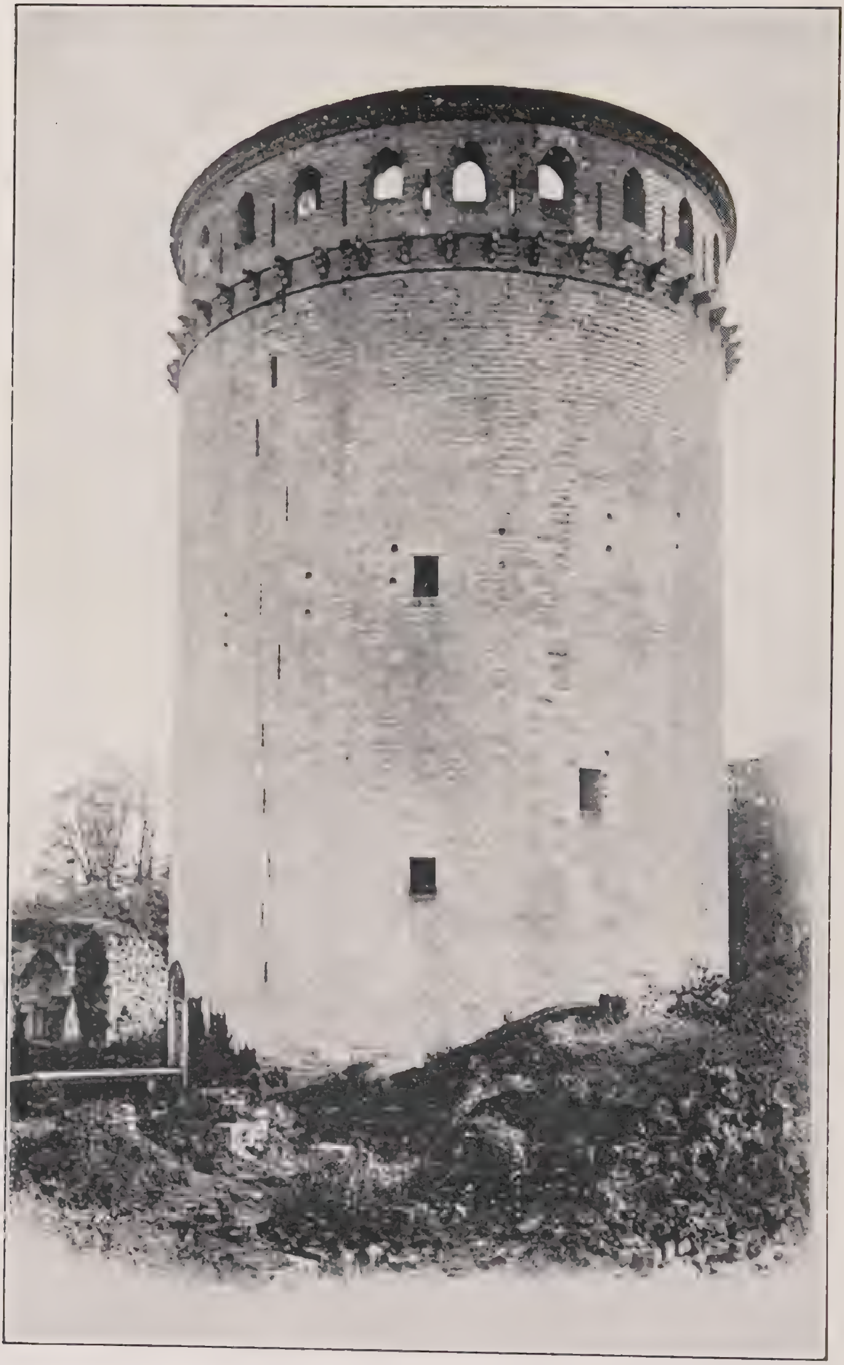


Fig. 16 — Donjon, Coucy-le-Chateau

New York Post Office and the Bordeaux Theatre. Such a square plan therefore tends to evolve into a hollow square or quadrangle, permitting air and ventilation, and, in the case of a pitched roof, bringing the elements of the façade into scale.

The Louvre is an outstanding instance of this kind of evolution into hollow squares.

The Italian palaces, such as the Farnese were natural developments of this type, in hollow square or rectangle.

The Early Christian Church, built upon the plan of the Greek cross, is in reality an elaborated type of square building. Its vertical element is accentuated not merely by the detail of the main mass, but by the crowning dome, often low in the Byzantine type, and as often high, or even pointed, and mounted upon an elevated drum, in the western churches.

Hagia Sophia of the former, and S. Maria at Genoa of the latter type, are illustrations. St. Peter's at Rome is another case in point of the square plan with lofty ascending dome.

In the East the Taj* shows a more graceful and delicate interpretation of the square motif, crowned with domes, and guarded by four sentinel-minarets.

The circular plan is also simple, perfect and isolated, lending itself to monumental buildings, especially when located at the intersection of divergent axes. It has more of grace and less of severe dignity than the square.

The circular plan was first used merely as an enclosure. It gave the maximum area within for the minimum of periphery to be constructed, and in the stockade, the fort, and other structures built for defence, had no weak places.

In classic times the circle provided the logical plan for the amphitheatre. Here again there was no roof, as far as architectural composition was concerned, but a plan subdivision to afford two different kinds of interior function — a major part stepped up in tiers for the spectators, and a smaller section for the stage. The Odeon at Athens affords an example of this. It is a perfect composition, much more satisfying than the semi-circular plans.

Later circular buildings developed roofs, conical, spherical, and combinations of the two, and with the further introduction of the cylinder or drum.

---

*Page 30.

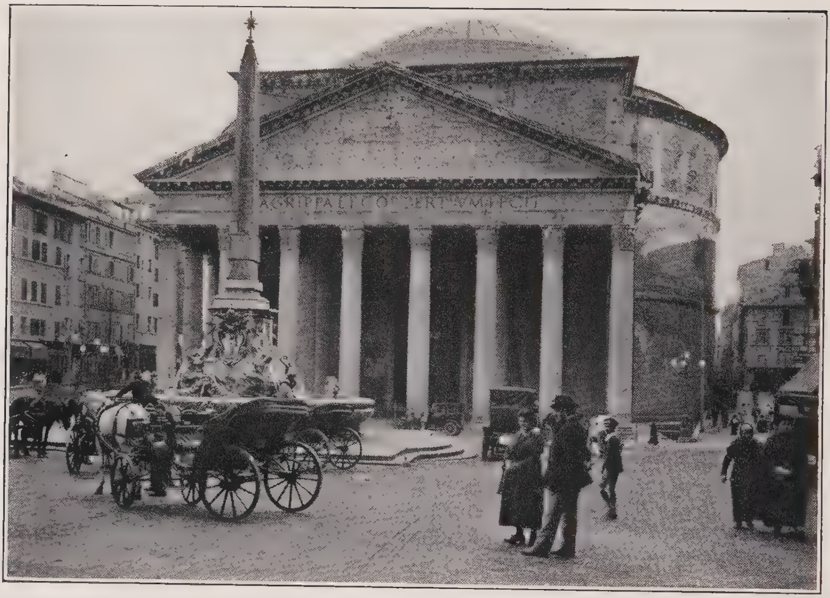


Fig. 17 — Roman Pantheon

The conical roof is exhibited in the Temple of Vesta at Tivoli, the Winter Circus,* Santa Maria della Croce at Crema, the Trocadero (although this is, literally, a pyramidal roof), the Dresden theatre, the towers of Feudalism, and the dovecotes of the low countries. As a point in design it may be observed that it is lighter, gayer, or at least more secular than the dome.

The domical temples of Greece and Rome called forth admiration by their faultless symmetry and perfection of form.

The dome is the normal covering for the circular plan, but its proportions cannot be predicated upon this or that formula. It varies from the almost-sphere or the top-shaped protuberance of the Russian Mosque and the Minaret of the East, to the flat spherical segment of the Roman Pantheon.† The flat dome commonly rises from a series of concentric steps constituting a skillful transition from the vertical walls of the building beneath. This transition is further developed by the introduction of a drum beneath the steps, as in the Mausoleum at Castle Howard and in the Rotunda in the Parc Monceau at Paris. In the Baptistry at Pisa‡ a crude lantern is formed from the upper part of the dome. In Bramante's Tempietto a complete lantern appears. In James Gibbs's Library at Radcliffe, buttresses are added to the drum, and ribs and window-eyes to the dome.

The circular building seems naturally adapted to the use of a dome on a square base, and gives rise to another type of plan, a combination of the square and the round, examples of which are too common to require enumeration.

As a matter of composition the circular shape itself, unmodified, is not wholly satisfactory, except in certain limited instances. It needs something added to the plan in order to establish stability and avoid a possible sense of rotation; in other words to give it direction. If, however, its principal element is verticality, no other direction is needed. In fact another direction would be distracting. The donjon of Coucy-le-Chateau§ is a simple example. The Choragic monument of Lysicrates|| is another, more ornate, and the Leaning Tower,¶ although its verticality is, in this case, not vertical, is a third, more complex in the character of its component elements.

* Page 62. † Page 58. ‡ Page 69. § Page 56. || Page 90. ¶ Page 69.

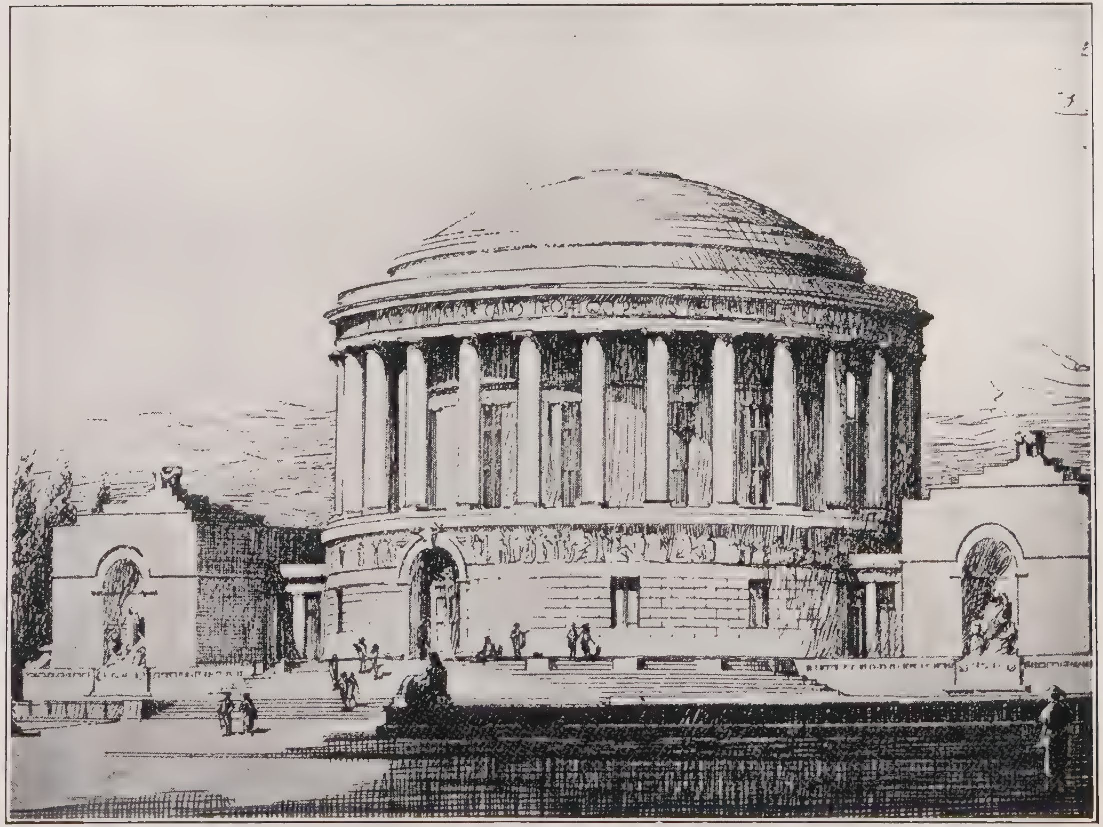


Fig. 18 — Elks' Memorial, Chicago
Egerton Swartwout, Architect

In a monument such as the Temple of Love * direction is not required. Seen in its sylvan setting it counts only as a point. It is not so much a "rond" as a rendezvous. In the Tomb of Constantia or in an occupied building like the Roman Pantheon,† direction is determined usually by a main entrance, architecturally emphasized. In the Elks Memorial building shown herewith,‡ the entrance, although ample in itself, is insufficient to steady the composition and prevent it from apparent rotation. The architect has anchored the composition firmly, however, by the use of two lateral rectangular wings connected to the main circular mass. These wings are in much quieter relation to the principle mass than is the portico of the Pantheon, for in the latter building the accent of portico almost overpowers the circular mass itself. In a survey of the outstanding circular buildings, what deductions can be drawn?

It may be said that buildings designed upon a circular plan tend to express the idea of grandeur and commanding beauty, but with a sense not so much of solemnity or sombreness, — the Donjon excepted, — as of grace and glory.

The polygonal plan occupies a very minor rôle in architectural composition. It lacks some of the grace of the round, the sturdiness of the square, and the adaptability of the rectangle.

In the tower it affords a more sparkling play of light and shade than any other geometrical form, whether in the Spanish style, as shown herewith,§ the minaret, or the prayer tower of the East. In the more complex building, it still is characterized by brilliance, even to the point of being dramatic. It is used in St. Vitale at Ravenna, in the Chapel at Aix, and in the dazzling Baroque of St. Maria della Salute at Venice.

The eye comprehends the octagon, and by custom has learned to accept it. The hexagon leaves the eye bewildered and dissatisfied. To the eye it is not quite a square nor quite an octagon. That is all.

The rectangular mass is the prevailing form in all ages and in all countries. According to local traditions and needs it varies in its proportions. To become convinced of the infinite variations and the relations of length, width and height, it is necessary only to cite some of the masterpieces of architecture with

---

* Page 64. † Page 58. ‡ Page 60. § Page 56.

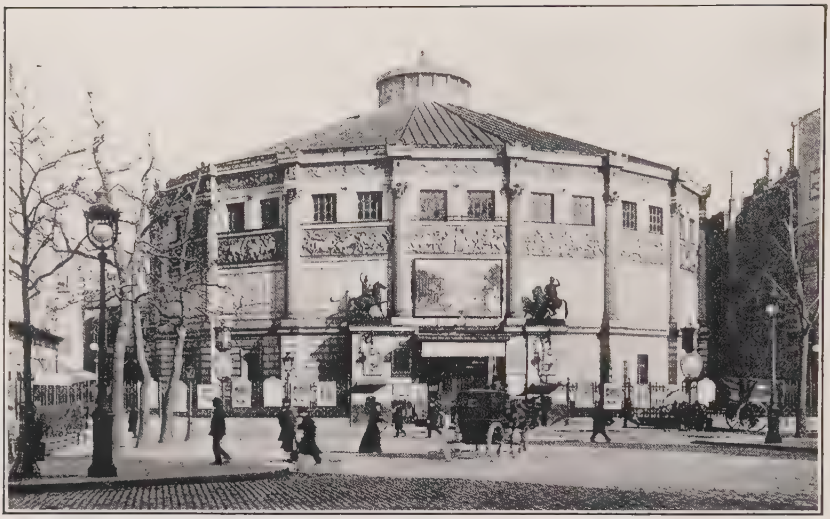


Fig. 19 — Winter Circus, Paris

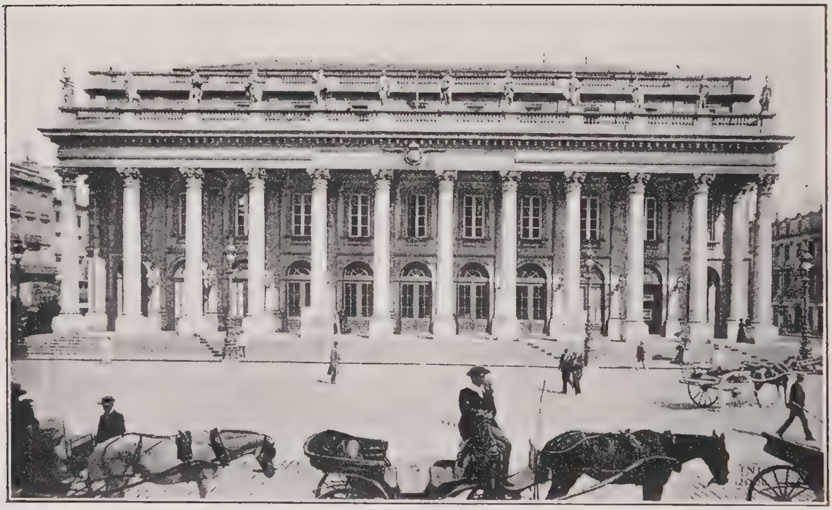


Fig. 20 — Bordeaux Theatre

which all are familiar. Among these are the Greek and Roman temples, the basilicas of the early Christian church, the Lincoln Memorial, and residences and business buildings without limit.

Now and then comes a mathematician into architecture, and he places a divining rod upon her masterpieces and finds that their plans and façades are built upon diagonals and roots and functions. Occasionally these numerical and geometrical relations seem to be more than accidental. Suffice it to say that if some architects obtain their proportions by complicated calculations, others do it by eye. The thesis of this book is that there is an interrelation between the proportions of a building and its environment, and that this interrelation dictates one mass for one site, another for another; one shaped building for one purpose, another for another, and like differences to suit differing materials and styles.

There is, as a consequence, scarcely a rectangle that will not lend itself to the plan of one building or another, from the almost square of the grand mansion of colonial days and the Petit Trianon* to the elongated form of the palace of Versailles or the stables of Chantilly.

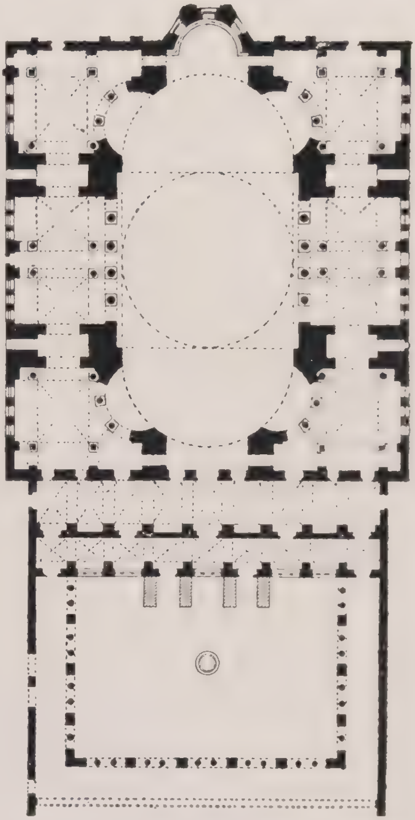


FIG. 21 — PLAN OF HAGIA SOPHIA, CONSTANTINOPLE

If it is true that proportions vary to harmonize with varying environments, no rule of absolute proportion will be valid. A fifth root diagonal may make a pleasing or an unpleasant façade according as it expresses a square or a rectangular plan, of a building in a crowded square or upon an isolated hilltop,

---

* Page 36.

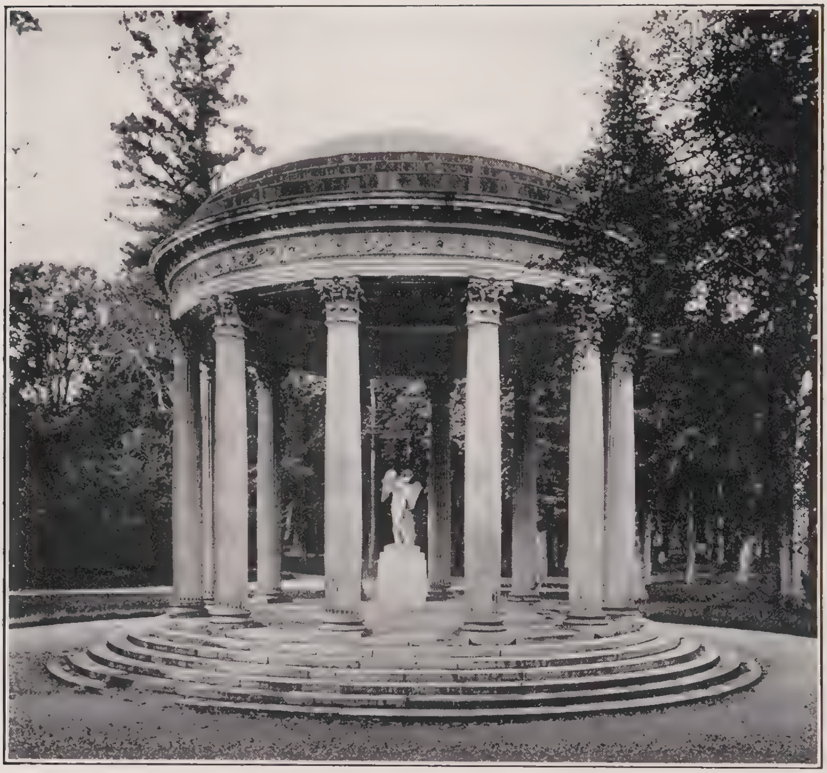


Fig. 22 — Temple of Love, Trianon

to house a jail or a summer hotel, in the feudal or in the late Japanese style of architecture.

Obviously there is no magic in a single rectangle to create all these multifarious forms of appeal to the eye.

While it is easy to discover a rectangle of any given shape in a building already designed, and to jump at the conclusion that the design derives from this particular geometrical relation, it is, obviously, impossible to establish a simple or rigid geometrical formula upon which the intricacies of feeling and proportion for all designs, periods, and styles can be based.

$a^2 + 2ab + b^2$ in a given design may be equal to six, but to infer that, in general, six will be equal to $a^2 + 2ab + b^2$ is a mathematical non sequitur.

Such are the balanced or formal plans. They are based upon the forms above enumerated and their derivatives and combinations.

In the unbalanced plan the first principle, namely, unity, is the great governing factor. So long as unity is preserved the variety of form is almost unlimited. In order to effect unity in a complex mass there must be a dominating element in that mass. This element, moreover, must not only dominate the others, but must emphasize and reconcile them, so that the effect is coöperative. There must be in a sense, a visual centre of gravity about which the apparent mass composes itself. The centre of balance and the centre of interest are not synonymous. The centre of balance may fall without the walls of the building as in a crescent shaped plan or an open quadrangle.

The frontispiece of this book is a photograph of the Abbey of Mt. St. Michel. It illustrates "balance" in an absolutely irregular almost jumbled mass. Similar to it in this respect is the Burg Eltz*. In both cases the mass follows closely, although doubtless inadvertently, the form of a group of rock crystals. Verticality is dominant, with a sturdy sense of stability. There is no exact centre or axis, but yet a definite group centre is evident.

While the informal or picturesque building often seems to be governed by principles wholly different from those affecting the formal structure, and presents a bewildering variety of forms, the cardinal principle, unity, is a sufficient guide and safeguard. It is a test superior to all others.

---

* Page 48.

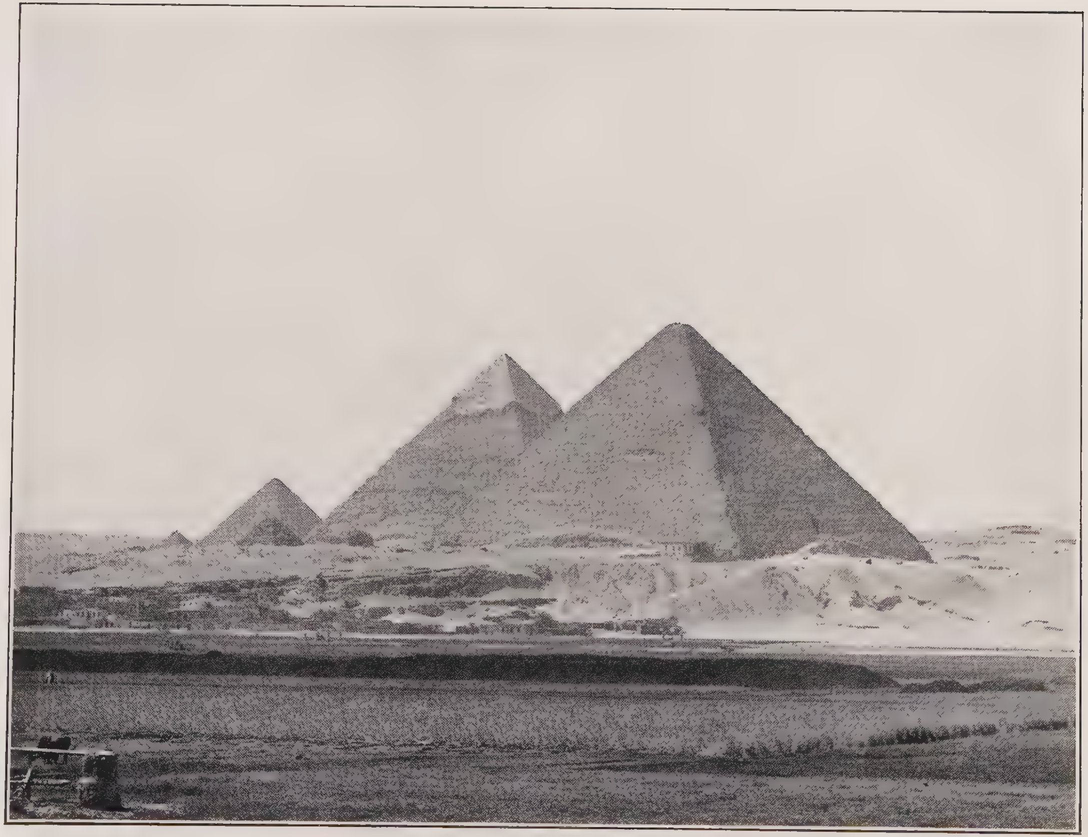


FIG. 23 — THE PYRAMIDS

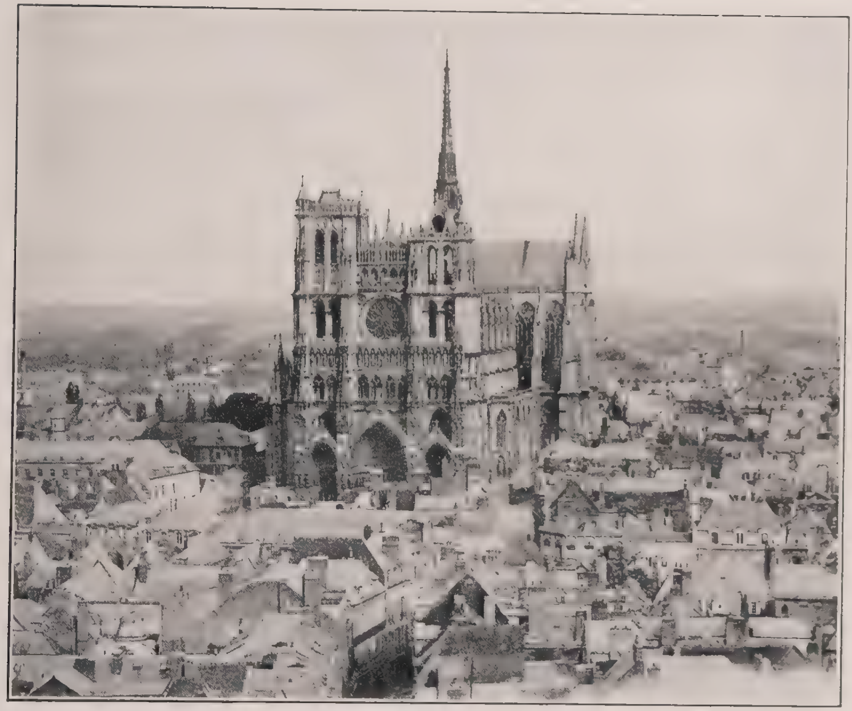


FIG. 24 — AMIENS

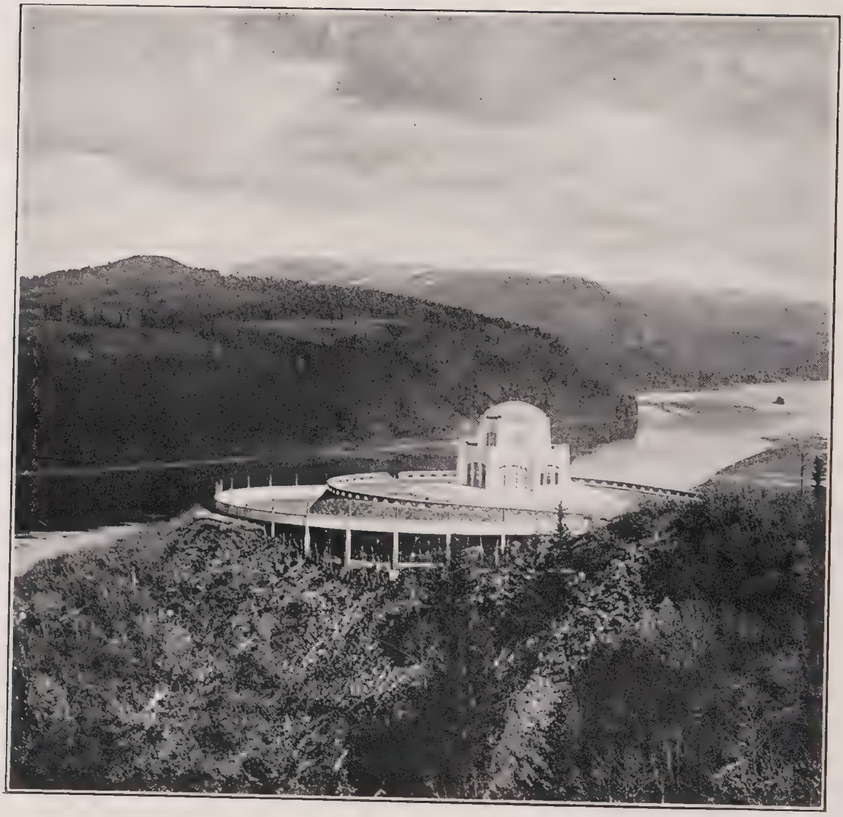


Fig. 25 — Vista House, Columbia River

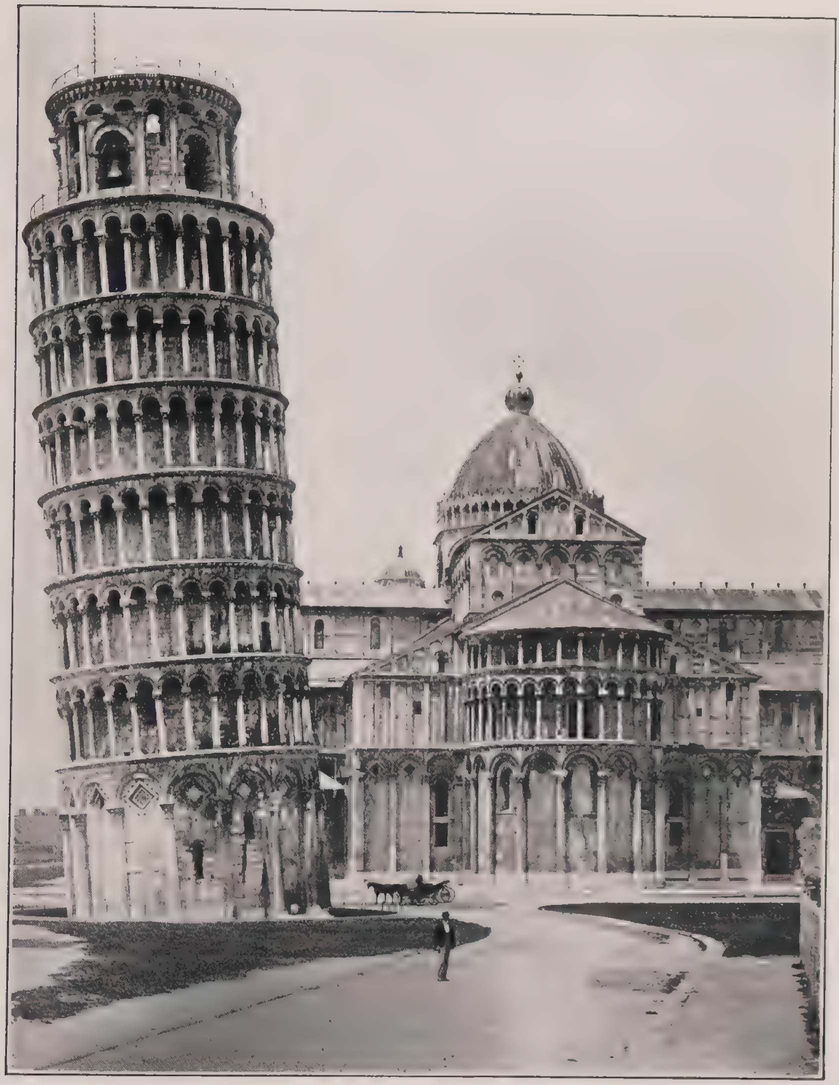


FIG. 26 — "PISA'S LEANING MIRACLE"

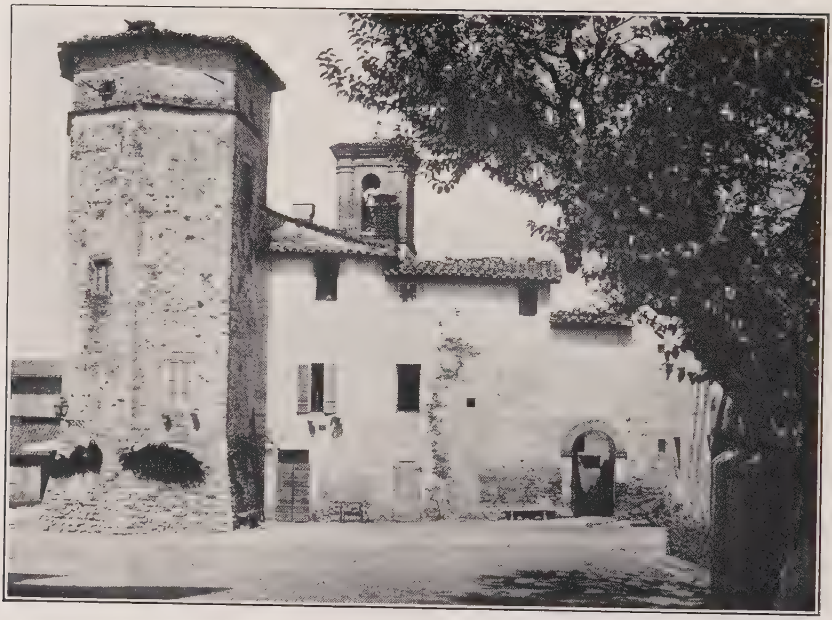


Fig. 27 — Villa

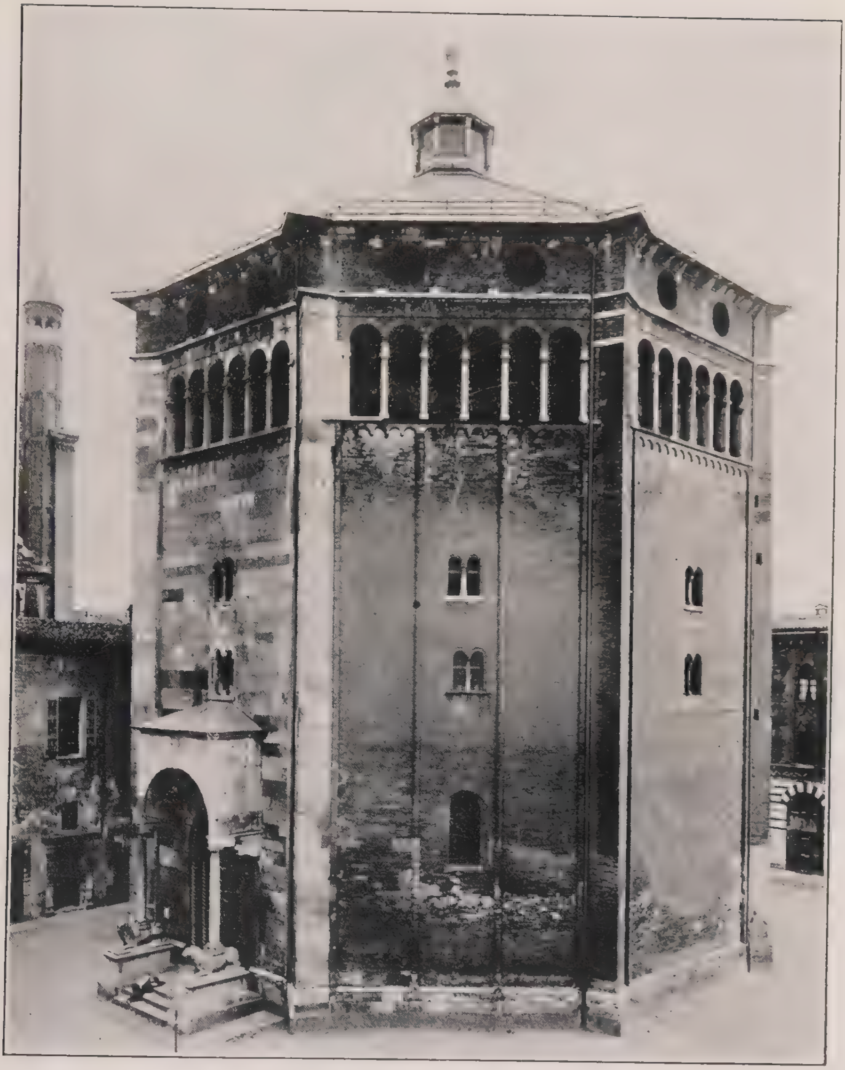


FIG. 28 — BAPTISTRY, CREMONA

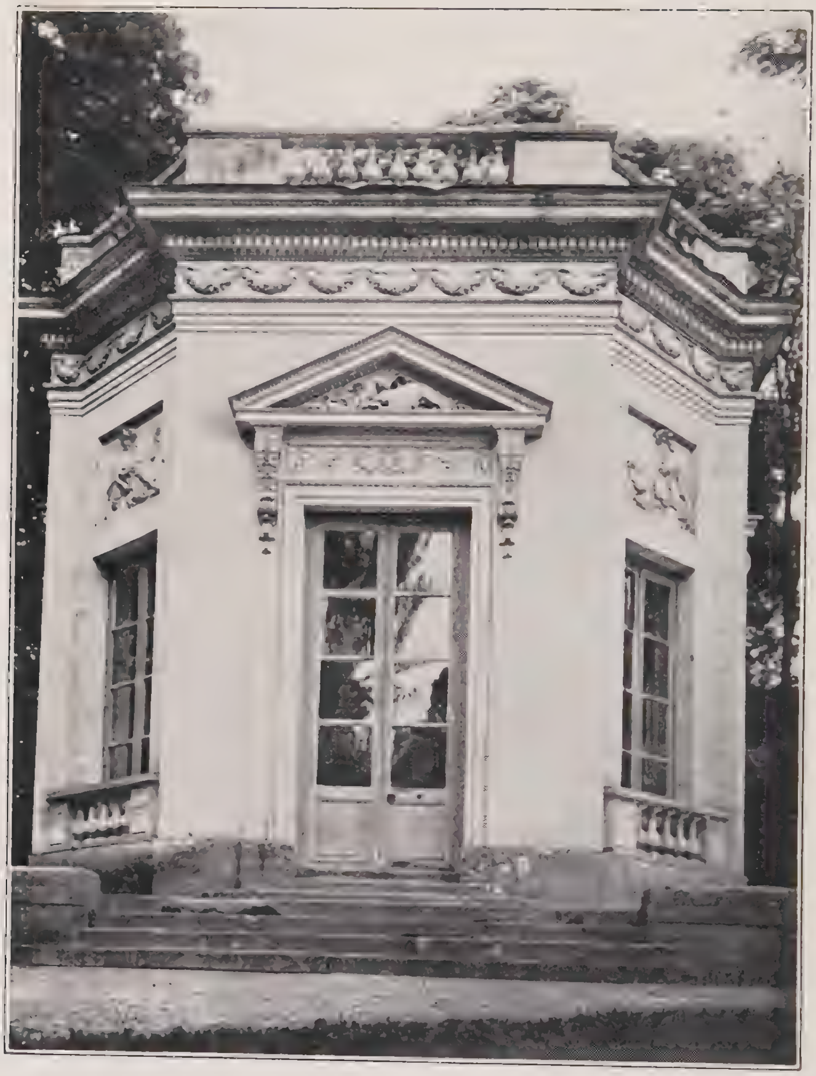


FIG. 29 — PAVILION OF MUSIC, VERSAILLES

CHAPTER XI

EMPHASIS

ASIDE from a centre of gravity giving mass balance, an architectural composition includes a principal accent or emphasis, or else a rhythmic series of accents. In the case of a building that is a single undivided unarticulated unit, the accent and the composition may be coëxtensive. In every other case the accent consists of one or more features in the general composition.

There seem to be exceptions and contradictions to this rule. A reason for the rule, and an explanation for the apparent exceptions are demanded.

The reason is not easy to give. One point, however, seems clear. A building that has an accent or focal point is easier, apparently, for the eye to grasp. The focal point helps rivet the attention. The eye cannot comfortably take in and convey to the mind, an entire structure that is a jumble of unaccented parts. As crystallization of ice on the quiet surface of water is promoted by a slight disturbance or jar, so the human attention is given a quicker grasp of an object by the accent or note of emphasis. The mental picture finds in this accent something about which it can organize itself with ease and consequently pleasure.

It would seem that the principle of accent might be satisfied in the case of a visual picture in which the landscape comprises the principal elements, and the building itself is the accent. This is true. The piece of architecture may constitute a focal point in a setting that is itself without other emphasis. The Washington Monument is, of course, an example. Without any point of emphasis within itself, it provides a focal point in the general park setting.

A circular "temple of love" in the edge of a wooded pool is itself the accent in a larger composition. The Chapel in a College Yard, surrounded by a group of dormitories, forms a

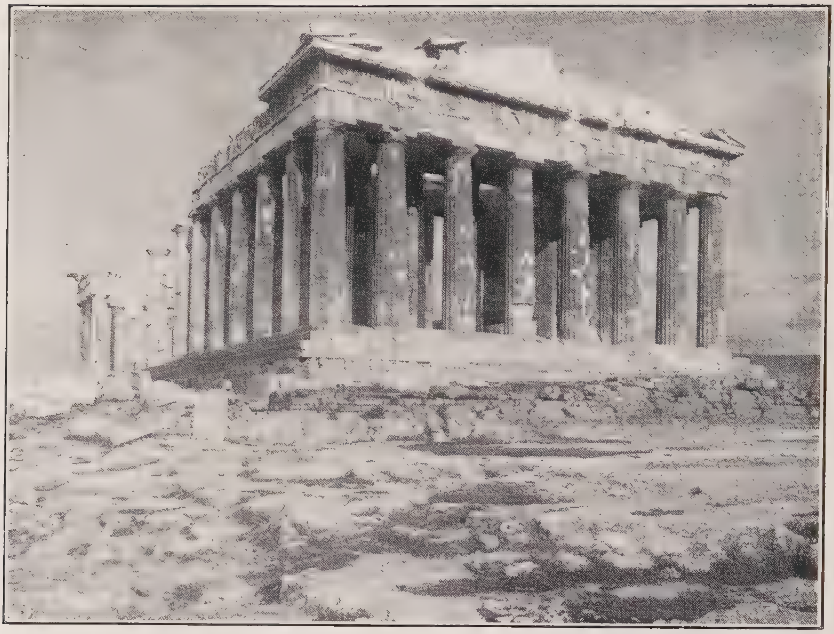


Fig. 30 — The Parthenon

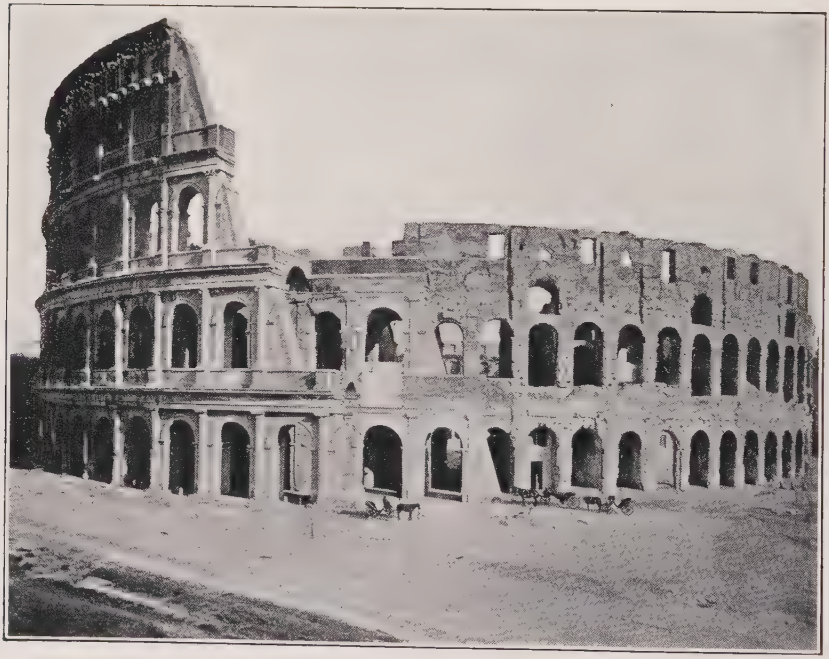


Fig. 31 — The Colosseum

nucleus about which the picture composes itself. The dormitories may be without individual accents, and may yet be perfect as foils for the Chapel. Amiens has such a nucleus in its cathedral, which dominates and gives composition to the whole city above which it rises in majestic beauty.

Any building that is an intimate part of a larger composition may itself lack accent. It is not a complete architectural unit. An architectural unit may consist of any number of individual buildings in a general composition. The composition as a whole, however, will have its accent.

Now for the apparent exceptions. What of the Parthenon? What of the Colosseum? What of the Doge's Palace? What of the Pyramids? What of the Leaning Tower? What of the great American mill building?

The pyramids differ from the obelisks. A pyramid is so compact that its apex attracts the eye easily and serves as an accent, although it has no dimension, no defined area, no separate existence. It is a geometrical focus in a wholly geometrical building.

The Parthenon * has no single accent. Crowning the Acropolis it is, itself, from one point of view, the accent in a larger composition. Yet the Parthenon has a rhythmic series of accents in its colonnade; a repetition of brilliant points, like a string of pearls. This rhythmic series itself is not wholly unaccented. The pediment gives a peculiar emphasis, so that the eye unconsciously seeks the centre of the carved tympanum as a focal area. As a composition the Parthenon is extremely subtle, and its accent is most illusive. It is composed like a fence, the pediment indicating the location of the gate, or like a jewelled casket or chest, the accents being where the handles occur. The composition is carefully adapted to its location. The building is seen from all sides. In this respect it is peculiarly a work of architecture, especially in contradistinction to our city buildings of the 20th century, which are façades only — pictures in two dimensions rather than architecture in three. The Parthenon courted inspection from all angles. It was the centre of an admiring and worshipping populace. So its accents are a continuing band, the points of especial emphasis being the

---

* Page 74.

doorways. It maintains its interest at a near-maximum from every point of view, rising to the full meridian at the ends. Where perfect proportions and sustained elegance of detail characterize a building, there is needed to steady the attention only the most delicate emphasis.

What of the Colosseum? * Where is its accent or point of emphasis, if any, and if not what compensates for it?

The great monotonous perimeter of this oval bulk expresses to perfection the purpose of the plan. It is impossible to walk around it on the outside without the constant desire to get in. The exterior is not satisfying. It gives the feeling of a building that is all rear elevation. The point of emphasis or of interest is continually within. It is an admirable box-office proposition. There is no full enjoyment of this building from the point of view of an architect, except as a ruin. It does not give the eye repose, but leaves it wandering, or searching for something unseen. As an architectural composition, placed where it was among the crowded public buildings of Rome, it was something of a monstrosity. Had it graced the broad summit of a rounded hill, or had it stood as the dominating mass in the midst of a great athletic field or open plain, it would not have appeared as a huge unaccented mass in a crowded picture but would have shrunk until it counted as a single point of interest in a larger composition.

Its appeal, then, is due to other elements than its composition, — to its grandeur, its richness, its uniqueness.

What of Pisa's "leaning miracle?" † Here is another building of circular plan; another building with superimposed arcades or colonnaded stories, and with little apparent accent in any one portion of its mass. Although a tower, it fails to lead the eye upward, as do most towers. Height is not a quality that it expresses by its architecture. Neither, of course, is stability. It is like a beautiful shell thrown up on the shore — a vagary — a charmingly delicate and intricate curiosity. In its own group with the Cathedral and Baptistry it may be placed as the point of emphasis in the completed composition. As such it is an accent, rather than an entire architectural composition in itself. It is a beautifully chaste and ornamented

* Page 74. † Page 69.

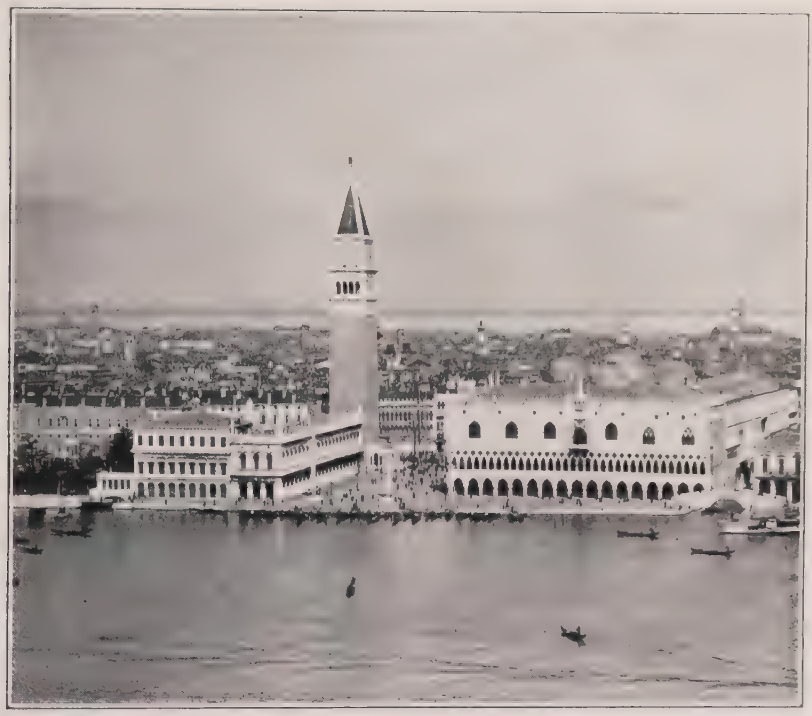


Fig. 32 — Doge's Palace, Venice

cylinder: a simple geometrical solid, small enough, with respect to its surroundings, to be grasped in its entirety by the eye. As stated earlier, in this chapter, the point of emphasis and the composition may be coëxtensive. This is most likely to be true in the case of a building whose mass is a simple geometrical solid — a pyramid, a cone, a cube, a cylinder, a sphere or a hemisphere.

The pyramids* come under this category. Literally without any composition, a pyramid is one of the simple fundamental forms with which human experience and the human eye is familiar. It is a form so rudimentary that the eye recognizes it as proper without analysis, and accepts it automatically as perfect and complete. It offers no distractions but is just a pyramid, pure and simple, like Truth.

The Doge's Palace at Venice † is another example of a building that perhaps does not suffice by itself to produce a complete picture to the eye. By its grouping with other units such a picture has been obtained. The Doge's Palace taken alone does not meet the acid test of aesthetic analysis. Often such a building is designed with its surroundings to constitute a unit. As often it owes its charm to an accidental development in its entourage, and oftener than not its effect is completely ruined by disharmony with its surroundings. The fault may be due to the failure of the architect to consider factors already existing and established, or it may result from later intrusions or encroachments which have been permitted by the negligence of those responsible for the maintenance of the building.

What can be said of the great mill buildings ‡ that were built in America during the latter half of the 19th century? They represent a vast area of brick wall, pierced regularly by rows of identical windows and frequently having the walls stiffened by piers or buttresses. That is all, and yet they are among the most impressive buildings of the land. Studied composition they lack. Size is theirs in abundance, and this in itself creates a feeling of awe and dignity. The orderly measured pattern of the window openings is somewhat satisfying. It accentuates the great size of the structure and gives an impressive sense of the number of rooms and of occupants. The

---

* Page 66. † Page 77. ‡ Page 79.

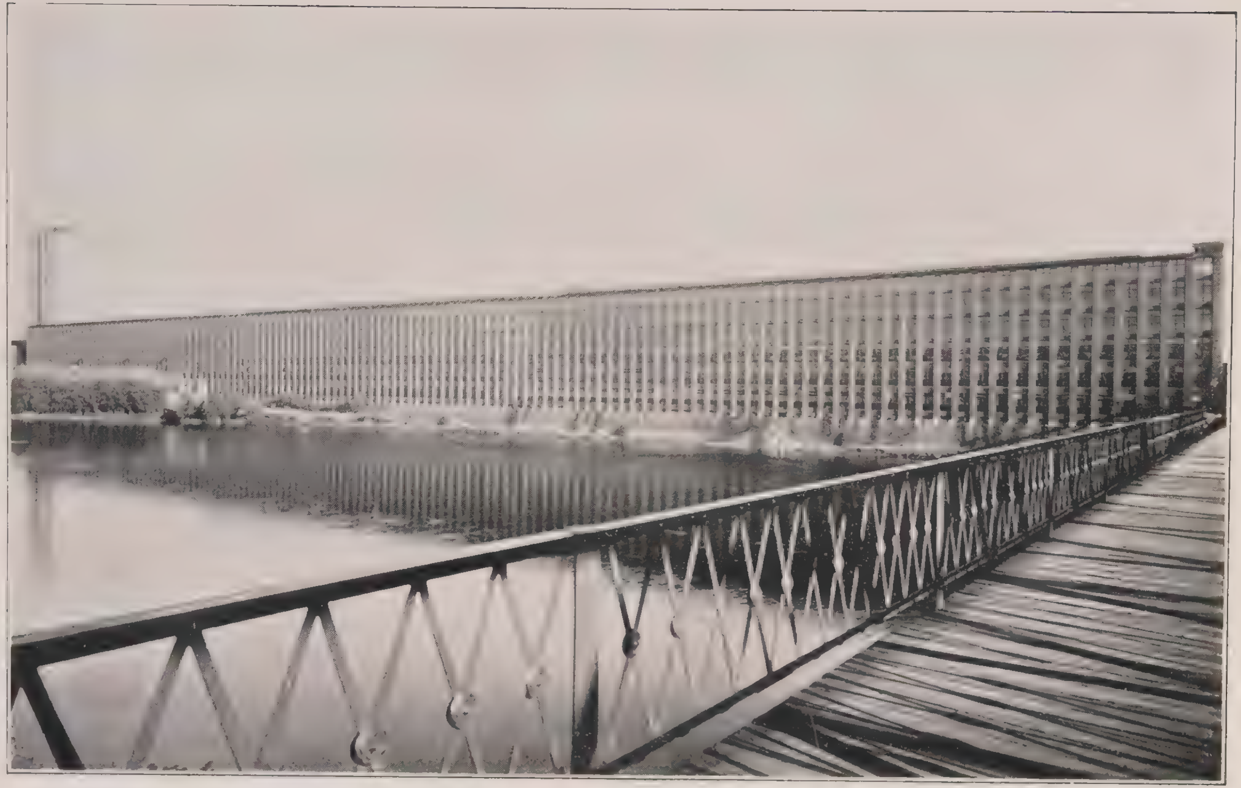


FIG. 33 — WOOD MILL AT LAWRENCE, MASS.

building is obviously a frank and sincere solution of the mill problem. It has in other words many strong virtues; but it has not "composition." It attracts the eye, but neither leads it nor leaves it anywhere.

This brief review of the apparent exceptions to the rule that an architectural composition must have an accent or principal emphasis, discloses two facts: first a simple geometrical form like a pyramid, a cone, or a cylinder is so fundamentally intelligible to the eye, and so complete a unit, that it may constitute its own accent. Second, a building of simple extended form may be accented not locally but by a continuous band or surface of enrichment, like the colonnades of the Greek temple, or the arcades of the Doge's Palace, the Colosseum, the Tower of Pisa. A building that expresses its plan requirements in the simple lines of an unbroken geometrical solid, so obviously fulfils its purpose, that it stands as architecturally right, without the sophisticated introduction of extraneous elements of composition. Let this building remain in the simplicity of form dictated by reasonable compliance with plan requirements, and let it be embellished with pleasing details of light and shade. The eye will comprehend the basic form with ease, and will rejoice in the harmonious rhythm or the sparkling cadence of the decoration.

If architecture were a pure art, — non-imitative and non-utilitarian, — the principle enunciated above would not hold. It does hold because architecture is a practical art as well as a fine art, and the intellectual appeal made by the rightness of the plan and structure, modifies the purely aesthetic estimate.

Commodity and delight go hand in hand.

Architecture offers a range of variation from the building that is wholly practical and utilitarian, on the one hand, to the monument that is pure art with no taint of utility, on the other.

The American mill already mentioned is a clear case of the former extreme, the Lincoln Memorial or the Arc de Triomphe of the latter. The lighthouse and the factory chimney exemplify the all-utilitarian type, the spire and obelisk the ultra-aesthetic. Between these extremes lies the vast majority of buildings, — houses, churches, markets and mills — buildings

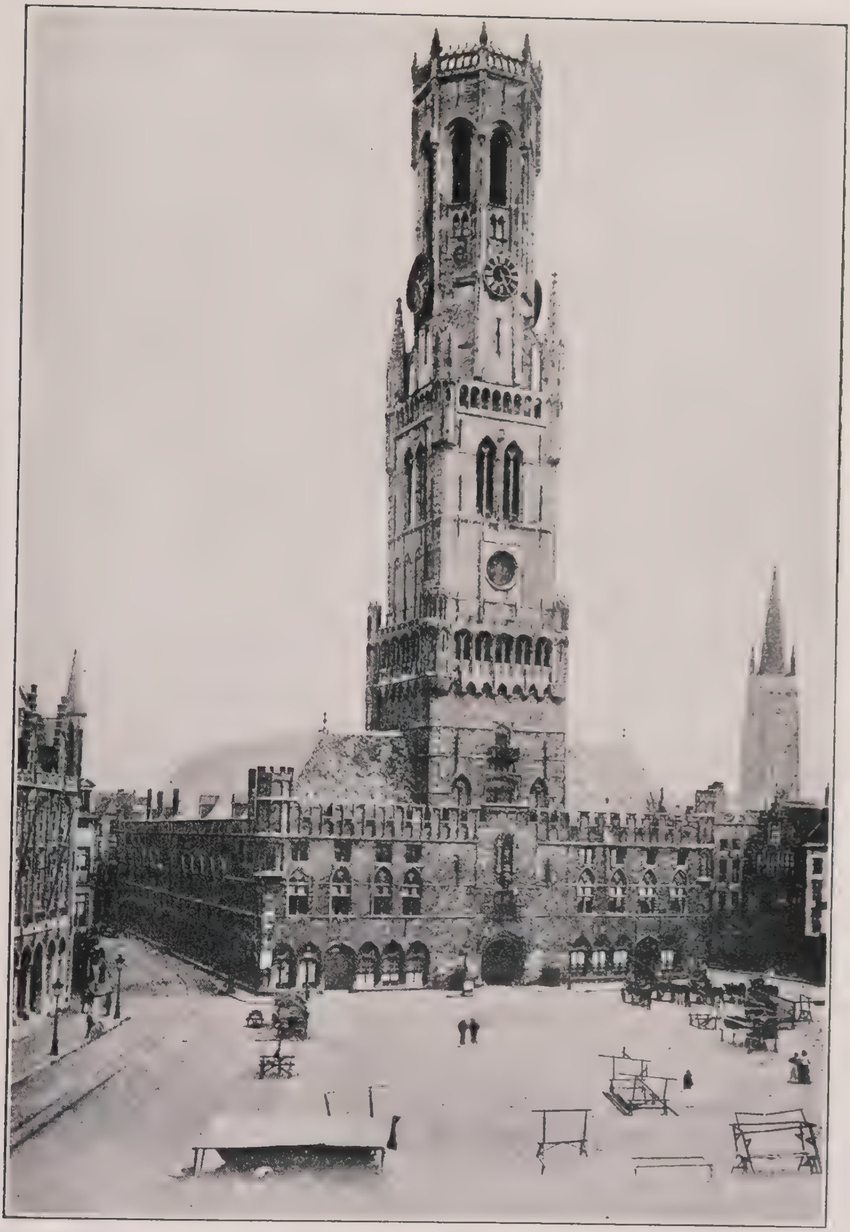


Fig. 34 — Beffroi, Bruges

in which there has usually been a conscious effort or impulse on the part of the architect to give to the structure of utility a garb of grace. This particular attitude is the attitude of the decorator.

Architecture is somewhat more serious, and has somewhat more of unity in its conception.

The structure and the garb are inseparable, at least to a large extent.

The idea of the building in its first form comprehends the structure, the style, the color and the expression of light and shade in the detail. The composition includes all these elements and more, blended in one initial conception.

In the discussion of the fourth principle of composition, which we have referred to as "emphasis" we have considered the exceptions, to the general rule — the architectural compositions that appeared to lack emphasis, and those in which the emphatic note is so subtle as to be inconspicuous or even undiscernible.

There is another type of composition in which the element of emphasis is so positive that it is unmistakable, insistent, and overpowering. Such a condition, while fulfilling the general rule requiring an accent that shall assure unity in the architectural whole, may utterly ruin the composition. An accent ceases to be an accent when it outweighs the primary value, as a tail is no longer a proper tail when it wags the dog.

It is not difficult to illustrate this point with specific examples. The tower of a church is often the accent in the composition. A church does not require a tower for this purpose, as there are other possible accents. Note the façades of Peterborough and Milan. In these examples the great portals serve as a sufficient point of emphasis, in no way disturbing the simplicity of the general mass, but giving direction and relation to its parts. If the accent is to be furnished by a tower, the tower must be strong enough to dominate the mass. It must not look like a mere chimney. But the point that we are making is that it must dominate without annihilating, as in Antwerp,* Chartres, Notre Dame de Paris, Durham: for in such examples as St. Mary's at Taunton in England, the Beffroi at Bruges,†

* Page 112. † Page 81.

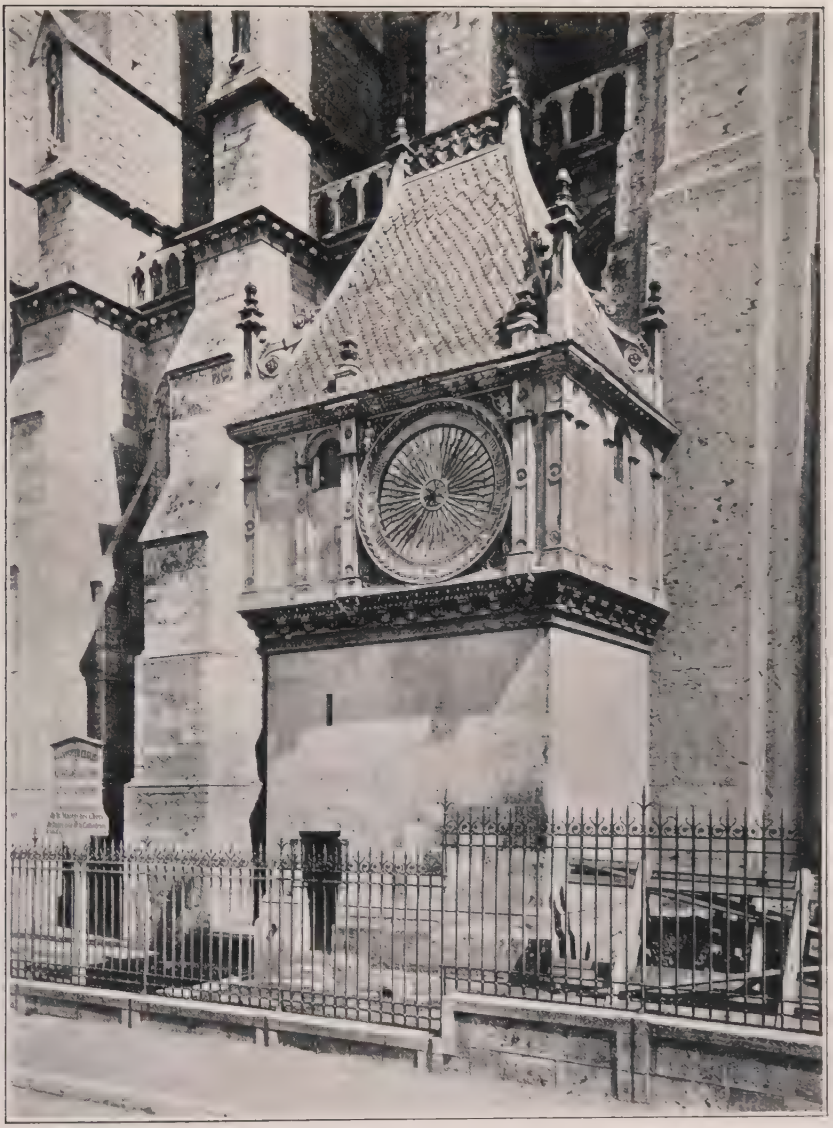


Fig. 35 — Clock Tower, Chartres

and St. Brides in London it is overpowering and the composition is injured by just so much.

The same is true of such natural compositions as mountains. The mountains of Pennsylvania with no emphasis, are magnified golf bunkers, compared to a mountain like Fujiyama with a brilliant, accented cone, or the Matterhorn with its dark focal point against the light background of the sky. There is difference in aesthetic value even among mountains.

Towers of commercial buildings are subject to similar laws. The Woolworth Tower completely overpowers the building of which it is the accented portion. The composition is lame in this respect. The tower itself is a thing of sparkling delight and, divorced from the building, would stand alone as a complete composition with its emphasis in the glittering pinnacle at its summit.

One of the commonest accents is the entrance of the building, — portico, doorway or arch. Here again the eye demands that the importance of this accent shall have a relation to the importance of the whole composition.

Frequently a gable or pavilion is used as the focal feature of a composition. Where this is done, the pavilion will occupy a larger part of the composition, relatively than did the entrance, without destroying the balance of emphasis, for a pavilion is a projection in the main mass, of the same nature as the mass itself, while a doorway is a hole in the mass.

In the composition shown herewith, the Clock Tower of Chartres, the dial is the principal accent or focal point. According to all rules it is awkwardly placed. Yet there is a subtle balance in the composition which justifies the seeming mistake. The huge building that forms a background, the break in the line of the fence, the doorway and tiny window slit, all form part of this remarkably harmonious whole.

Other features of various kinds may constitute the accent in an architectural unit, and each will have its relation to the whole, but this relation will vary with the character of the feature that constitutes the accent. All this is perhaps only to say "The accent should be a proper accent" which of course is to say nothing at all, except that there shall be some kind of an accent. To develop a formula or draw up a diagram that will

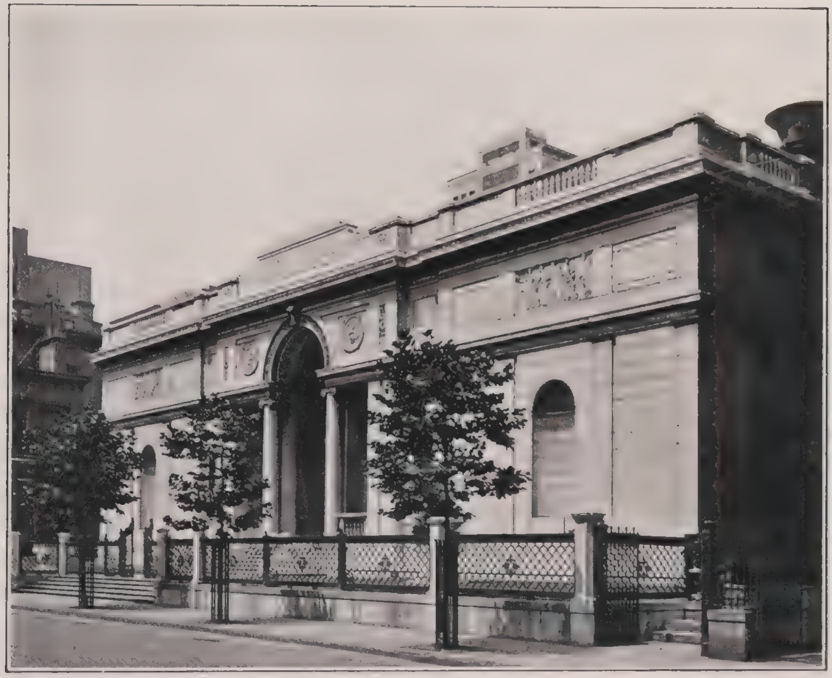


Fig. 36 — Private Library of J. P. Morgan, Esq., N. Y.
McKim, Mead, and White, Architects

determine for a designer in advance the importance, size, or location of the accent in his composition, is impossible. As has already been suggested, the background of geographical, racial and social considerations reacts so directly upon the principles of composition in any given case, that only a "sense" of fitness developed from thorough observation and sympathetic understanding of examples can provide the discrimination necessary to compose an architectural unit of "merit."

The complexity of the problem is so great that it may be compared to the complexity that would face one who attempted to lay down rules for determining a pleasing personality. No two pleasing personalities are alike. Only the rarest personality would be found universally pleasing. Only rarely is there unanimity of opinion among people of different ages and climes.

All that can safely be postulated is that in order to obtain unity the eye must be focused; that the focusing requires a point of principal interest; that this point may be large or small, high or low, depending upon other conditions of the design; but that it must not be so large or so marked as to destroy unity, nor so unimportant as to fail to focus the attention.

CHAPTER XII

PROPORTION

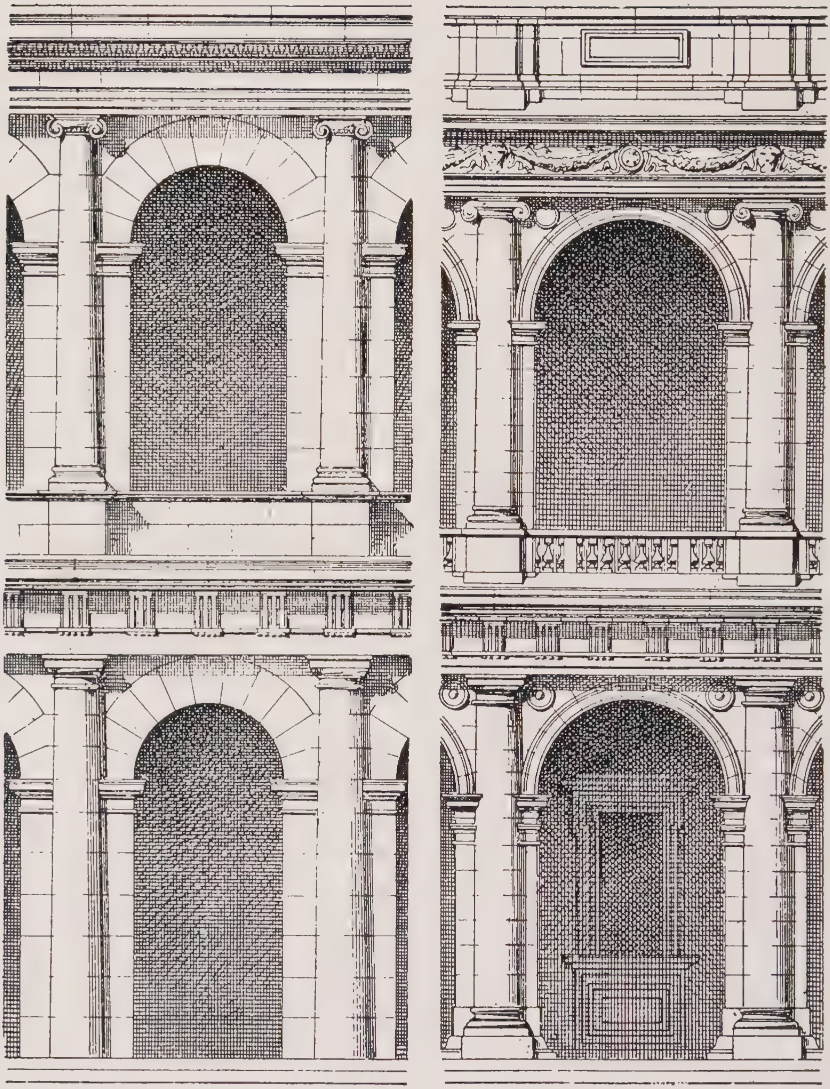
IN earlier chapters the theory was advanced that in the matter of proportion no criterion or measurement could be set up. Within the bounds of Unity, Balance, and Emphasis already discussed, there is no limitation in the proportions of the mass of the building.

A single theme affords opportunity for various expressions wholly different in character, according to the proportions employed by the architect, to achieve one or another effect. Unless the architect is free to modify his proportions to suit the exigencies of the composition before him, his art is curbed.

One teacher of architecture illustrated this principle by pointing to two identical compositions, greatly divergent in proportion, the Theater of Marcellus and the Portico of the Court of the Farnese Palace. In these examples the description of one would be identical with that of the other; semicircular arch with moulded impost, flanked by engaged Doric columns, Doric cornice with triglyphs, surmounted by balustrade course bearing similar arch flanked by engaged Ionic columns, Ionic cornice and balustrade motif. Items identical, proportions wholly diverse, and yet each, in its own place, a masterpiece of architectural design!

The Choragic Monument of Lysicrates and the Rotunda shown herewith furnish another illustration of the same flexibility of the law of proportion. A rusticated stylobate surmounted by a circle of Greek Corinthian columns and cornice, and a crowning ornament: — one is a copy of the other, with all the proportions changed, and yet each in its place and for its purpose is excellent.

The Greek temples, following one parti, vary from the heaviest and most massive proportions to those of supreme elegance. The same parti in the hands of the Romans became still more elongated, and this tendency to reduction in solidity



From Guadet's "Principles of Architectural Composition."

continued progressively through the Renaissance into the attenuated delicacy of the American Colonial, but with no change in theme from the original columnar portico crowned with the cornice and pediment.

Is there in all this disparity a best? Is there a criterion by which the infinite variations may be ranked according to excellence? Opinion has pointed for many decades to the Parthenon as the acme of perfection in its proportions. There is no need to challenge this opinion, but along with it we can accept as perfect in the relation of its parts many another portico in our portfolio of 25 centuries of the world's great monuments.

Victor Hugo said "Supreme art is the region of equals. There is no primacy among masterpieces." Each work of genius fills our sense of admiration to capacity. Our cup runs over, and is no fuller with one than with another.

Moreover, the consideration of Background, already developed in these pages, enters in each individual case to justify or challenge the peculiar proportions employed. The Acropolis of ancient Athens called for a Parthenon. The identical proportions of this Parthenon are less noble when reproduced in the streets of Paris or the pseudo-mediaeval atmosphere of Tennessee.

To illustrate the same principle by another form, that of the triumphal arch, consider the innumerable differences in proportion obtaining, and the way in which these differences respond to the background and the purpose, in each case, of the architect. If, in this group, one arch stands out preëminent, it is because of the background, or site, and the size, as well as the masterly proportions, for the Arc de Triomphe de l' Etoile* is a focus and accent at once in a larger composition, the grandeur of which is hardly equalled in any other similar creative design in the whole world.

Proportion is influenced not alone by background and purpose, but by material. The notable effect of the adoption of steel for the framework of buildings has been to revolutionize the proportions of buildings. Two buildings identical in purpose and with the same setting, would develop different proportions in steel as contrasted with stone.

---

* Page 26.

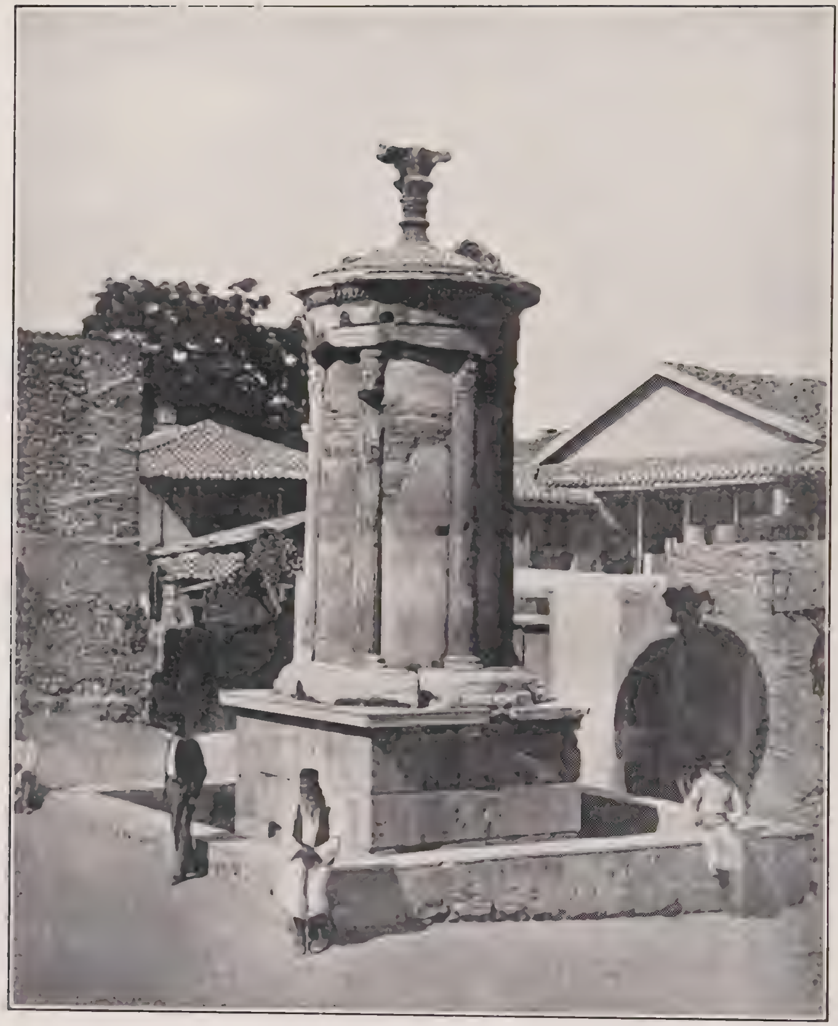


Fig. 37 — Choragic Monument of Lysicrates

Proportion is also dependent upon style. The Classical tradition began with massive proportions and in each new age developed a new style with increasingly delicate and slender members. The Doric order, therefore, in spite of Vignola, has no modulus, but passes by easy gradations from the stocky shafts of Ephesus to the comparatively elegant Parthenon, and shrinking again through Roman influence, and the Renaissance, becomes attenuated to the point of extreme delicacy in Yankee Colonial hands.

Proportion is so thoroughly a function of background, material, style, that it obeys no separate or independent formula.

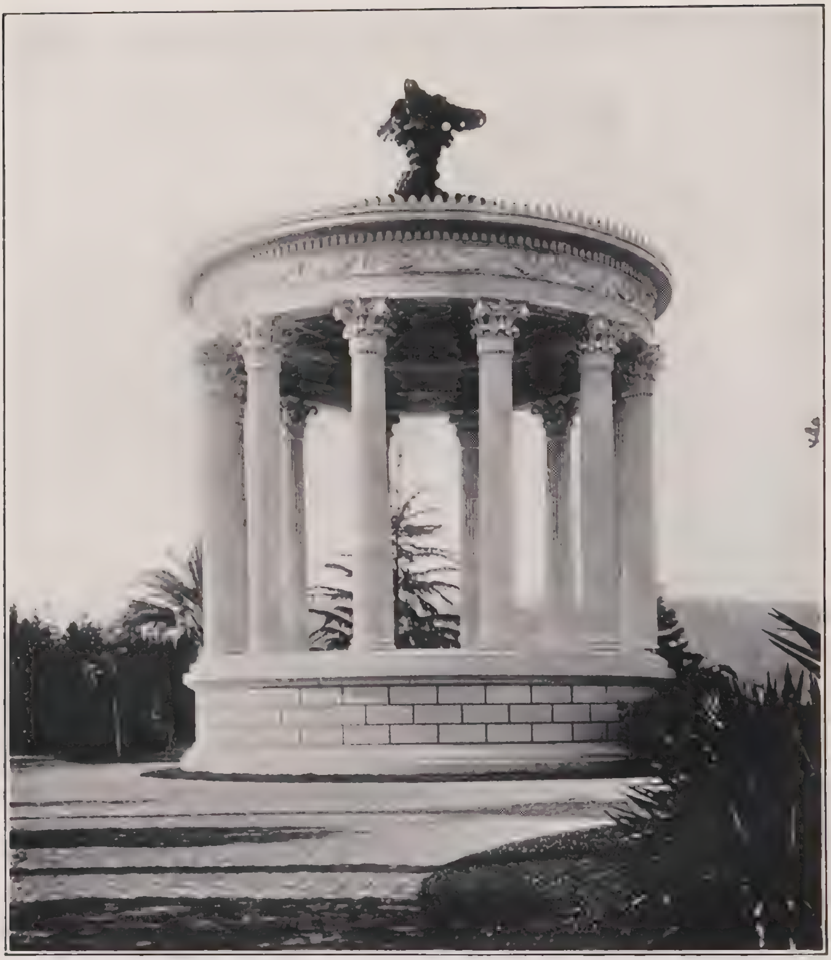


FIG. 38 — ROTUNDA, SOUTHERN FRANCE

CHAPTER XIII

THE PICTURESQUE

IN any inquiry into the Elements of Composition the question of the "Picturesque" intrudes itself sooner or later. What is balanced and rhythmic yields to analysis, but there is in the picturesque a subtle quality that is almost baffling in its illusiveness, and that sometimes seems to run counter to the rules of composition.

If we try to include it with other architectural forms, it evades classification. It is not a style, for all styles can be expressed in the picturesque. There can be a Greek or Roman classical building straggling along the strand in picturesque fashion. There can be beautiful Chinese temples that are not picturesque.

Neither is scale the key to the mystery. If a little thatched cottage is picturesque, so are the pyramids, and as between a wattle fence and a grain elevator, who shall determine which has the more of this quality?

There may be a note of insincerity in the picturesque, but this is not part of its requirements. A pseudo-antique country house may indeed qualify as highly picturesque, but so may the one that is genuinely decrepit.

The qualities which lend picturesqueness to architecture are playfulness or fortuitousness of form, (as exemplified by the Burg Eltz, shown on p. 48), colorfulness, especially in surfaces, (in contradistinction to the classic monumental buildings, with no surfaces at all, or at least, none with color significance), and sketchiness of outline, either because of weathering, or by deliberate design.

In addition to these might be mentioned one more trait, namely extreme adaptability to the landscape.

Perhaps it is not an architectural quality at all that bestows picturesqueness upon a building. The word itself gives the suggestion, for the picture belongs to another art than the building. Architecture may possess in addition to its own inherent and characteristic qualities, the elements which an artist demands for a pictorial composition. If the eye is trained to a painter's point of view, rather than to an architect's, it will appreciate and applaud the kind of architectural composition that appeals in its two-dimensional aspect.

Such an appeal may be regarded as in no way detracting, but rather adding a pleasant extraneous charm to the architecture-proper.

Architecture which requires such help lacks the essentials of good architecture but architecture which is enhanced by it provides us with some of the best examples that we know.

The painter has almost universally used landscape as his inspiration and model. From this fixed habit has come an understanding of and fondness for the forms of nature that is almost instinctive. The painter, therefore, and those who have his point of view find a familiar beauty in the vine clad ruin, and the moss patched roof. To them the building that has become almost literally a part of the natural landscape is the one that has merit. If time has not already taken it for its own, it can be a built-to-order ruin. The popularity of this theatrical pseudo-antiquity in architecture is easily explained in an age devoted to the picture and thoroughly educated to appreciate its values.

Added to this is the further consideration of the need of variety and diversity in an age of endless repetition. Where there are thousands of balanced and formal houses all alike, pleasant relief is felt at the sight of a building in a freer, easier style.

At its worst the picturesque may be merely a form of the sensational. In this phase it forgets all proprieties, and exults in a restless rag-time of caprices, shingles contorted into the outlines of thatch, pavements with grass and wild flowers painfully planted in purposeful cracks, bricks that have suffered convulsions, and are doomed to a permanent position of bias in the wall, ridge poles cursed with the original sin of a pre-sawed sag, and other like super-deliberate naïvetés. These are the product of the mind that is novelty-mad. They indicate the picturesque at its poorest.

At its best, as suggested earlier in this discussion, the picturesque is an element of grace and insouciance added to existing architectural strength. It has something of natural easiness, something of the sanctity of use, and is suffused with a certain blushing modesty, as time places upon it its warm caress.

THE STRANGE GUEST

Alfred Noyes

You cannot leave a new house
With any open door,
But a strange guest will enter it
And never leave it more.

Build it on a waste land,
Dreary as a sin,
Leave her but a broken gate,
And beauty will come in.

Build it all of scarlet brick,
Work your wicked will.
Dump it on an ash-heap,
Then — O then, be still.

Sit and watch your new house,
Leave an open door.
A strange guest will enter it
And never leave it more.

She will make your raw wood
Mellower than gold.
She will take your new lamps
And sell them for old.

She will crumble all your pride,
Break your folly down.
Much that you rejected
She will bless and crown.

She will rust your naked roof,
Split your pavement through,
Dip her brush in sun and moon
And color it anew.

Leave her but a window
  Wide to wind and rain,
You will find her footsteps
  When you come again.

Though she keeps you waiting
  Many months or years,
She will stain and make it
  Beautiful with tears.

She shall hurt and heal it,
  Soften it and save,
Blessing it, until it stand
  Stronger than the grave.

You cannot leave a new house
  With any open door,
But a strange guest will enter it
  And never leave it more.

CHAPTER XIV

ORNAMENT

HAVING discussed the general geometric shapes that a building may take, and its proportions, as well as its background, the inquiring mind turns its attention to the much mooted question of ornament.

Immediately two theories present themselves. The one avers that ornament should express function. The other admits ornament for its own sake.

As in many another case where there are two opposing theories, so here, we find that both are right.

Ornament should indeed express function. This is its happy privilege at times.

It should also find ample justification as a purely decorative element, divorced from function and all material limitations.

It is just as well to scrutinize this situation with respect to ornament in the light of its earlier history.

Ornament came into the world long before architecture; in fact long before man.

Roses bloomed long, long ago, and wasted their sweetness on the desert air. Many a flower that does not depend upon attracting even an insect, has its ornament of richly colored petal, golden stamen, and symmetrically designed pistil.

Peacocks strutted and spread their gorgeous tails, before there was any association between ornament and function, except the function of pleasing the eye.

That function — of pleasing the eye — has been a sufficient justification in the great world of nature, for the most exquisite, elaborate, and capricious ornamentation, and it may safely be assumed to justify ornament in architecture for the mere sake of decoration, functional or non-functional.

Stripped of its non-functional ornament, the architecture of almost any period of history would look bare indeed — very much perhaps like a molted peacock.

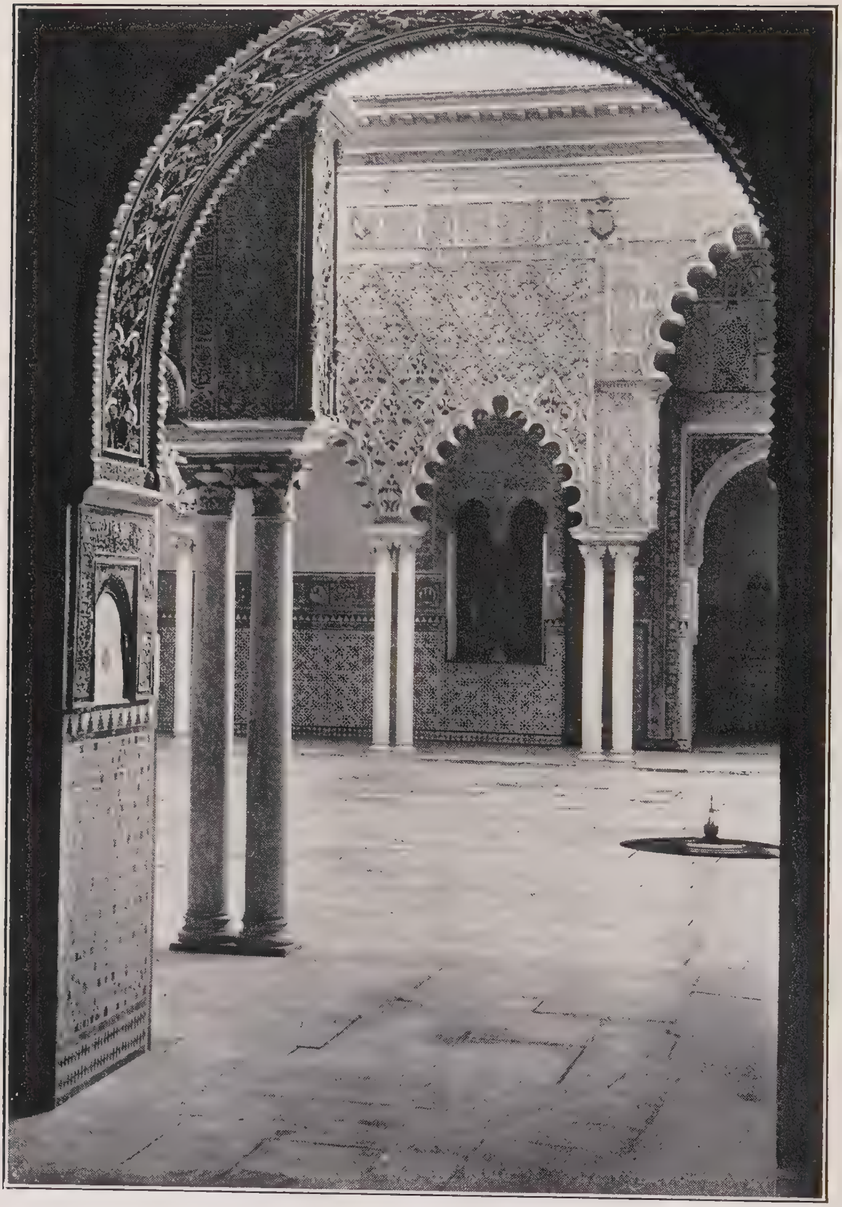


Fig. 39 — Moorish Ornament

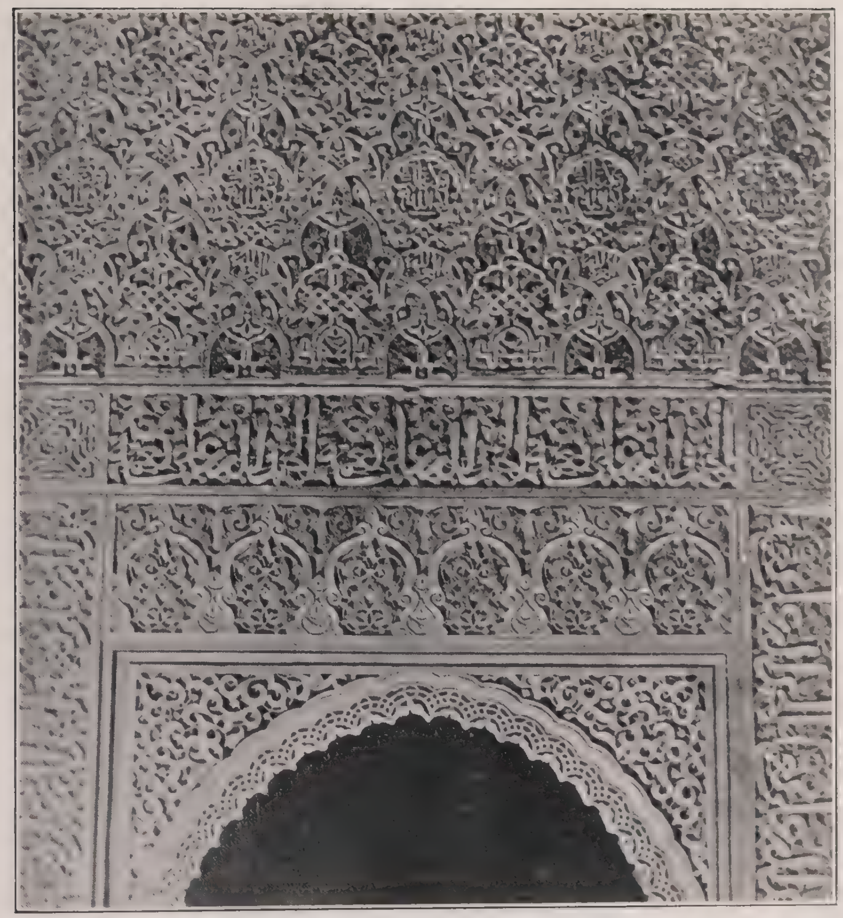


Fig. 40 — Moorish Ornament

The Parthenon would be stripped clean. St. Peters would be shorn of its accents of light and shade — in fact would never have been built in its present shape. The whole classic tradition would crumble, and the five orders would vanish away.

The Gothic fane would suffer the least by losing non-functional decoration. Its proportions, structure, buttresses, vaults, and windows would remain. It would lose its rows of human figures, its pinnacles and finials, and here and there a boss or an accent, but would still be a thing of great beauty. Perhaps its towers would disappear, but the main features of Gothic, like those of the human face, are functional.

In granting that ornament may be used for its own sake, it would be well to examine the term itself and to establish its limits.

Ornament included originally only certain superficial elaborations of structural members or applied motifs such as wreaths, figures, shields, panels, and such like details.

The Moorish taste for surface decoration is illustrated herewith.* The Classic tradition also has made us familiar with surface ornament. The Arc de Triomphe shows most of the classic items with the exception of the capitol, — namely, the cornice, the architrave, the spandrel, the keyblock, the panel, the frame, the coffer, the dado, the bas-relief, the medallion, the cresting, the gargoyle, the modillion, the balustrade or attic motif and the frieze.

Under present conditions ornament is vastly more inclusive. Today colonnades of great size and extent are used with no structural or functional purpose whatever, but purely to decorate a façade. Whole roofs are designed and added to buildings for ornament, — pitched roofs with dormers and gables — where only a flat roof is required for utility. Domes are superimposed upon plans innocent of any preparation to receive such distinction. The "block" system of ornament, resembling the crystal formations in natural rock compositions, is shown herewith. It is vigorous and telling, and so well adapted to the crowning motif of skyscrapers.

Much that was developed in earlier periods to meet structural and functional needs, has been outgrown in that capacity,

---

* Pages 98 and 99.

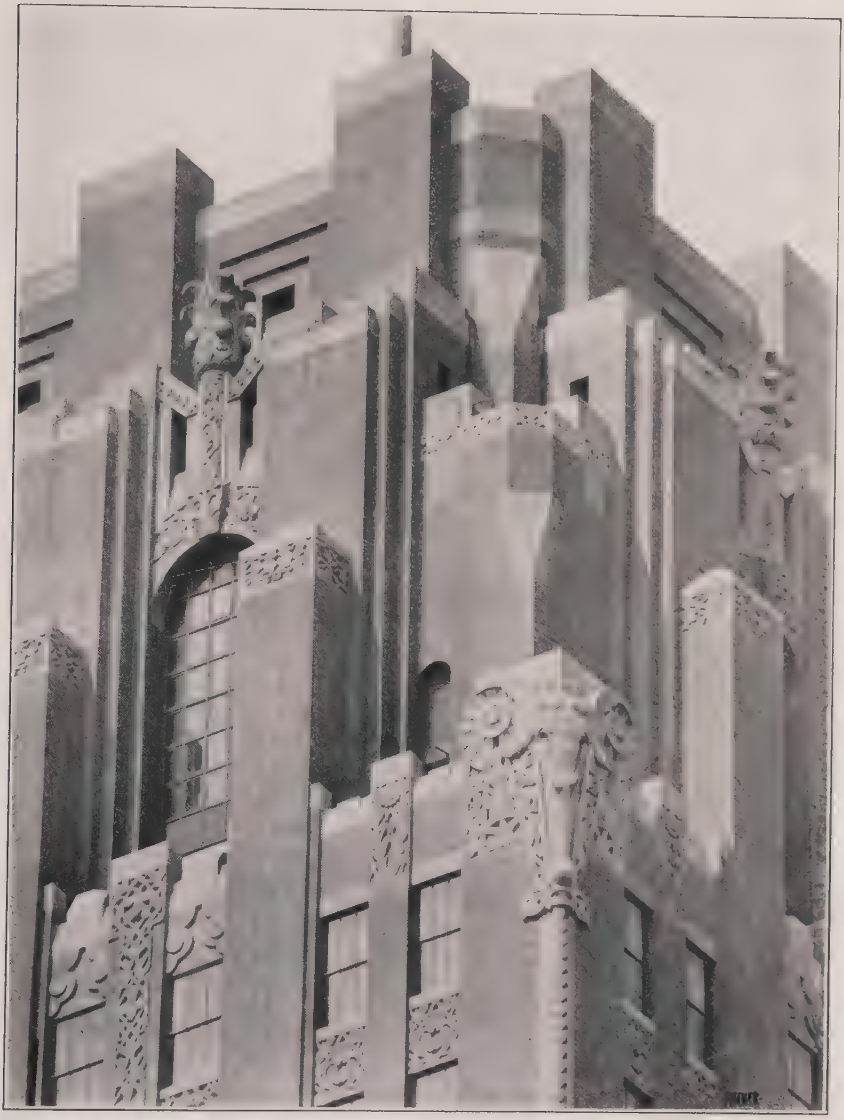


FIG. 41 — NEW YORK TELEPHONE BUILDING
McKenzie, Voorhees and Gmelin, Architects

and persists only as part of an inherited alphabet of ornament. In this respect it is only partly good. While enabling architects to design coherently, from a scholar's point of view, it tends to deaden initiative and render architecture less and less virile and significant, and more and more reminiscent. The fault, however, is not to be laid to the fact that ornament of a non-functional character is employed, but to the fact that outgrown forms of ornament are used inappropriately in buildings of a new character, which require a new vocabulary of expression: always remembering that this new vocabulary need not be a functional one.

The story of the old vocabulary of ornament is an oft-told tale. It has been treated in a hundred text-books, and is taught in the schools of architecture. The emphasis given to it is probably largely responsible for the prevailing inability of the students so trained to think in terms of a more genuine and vital ornament of the newer order.

In spite of this deadening effect of an over stressed tradition, there is here and there a powerful personality that breaks away from restraint, and strikes out into the open, searching and trying out either spontaneous forms of ornament, or spontaneous or novel uses of traditional ornament. Inevitably these pioneers are followed by imitators, and a style is born.

A graphic example is furnished in France under Francis the First. The Classic tradition furnished motifs for the ornament, but the disposition, combination, and character were new. To these were added the emblems of the monarch, lavishly spread over wall and panel, and perching on balustrade and pinnacle.

Now in the twentieth century a similar evolution of new ornament is appearing. Louis Sullivan startled America in 1893 with a novel type of ornament, brilliantly adorning the Transportation Building at the Chicago Fair.

Goodhue has since developed a mode of decoration, individual, subtle, rhythmic, precursor of a new style.

Sullivan's is obvious, pleasing, almost amusing.

Goodhue's is illusive, stimulating, even weird.

These instances of the creation of a mode of ornament by a single individual must necessarily be rare. It is not wise for the budding young architectural student to expect himself to make

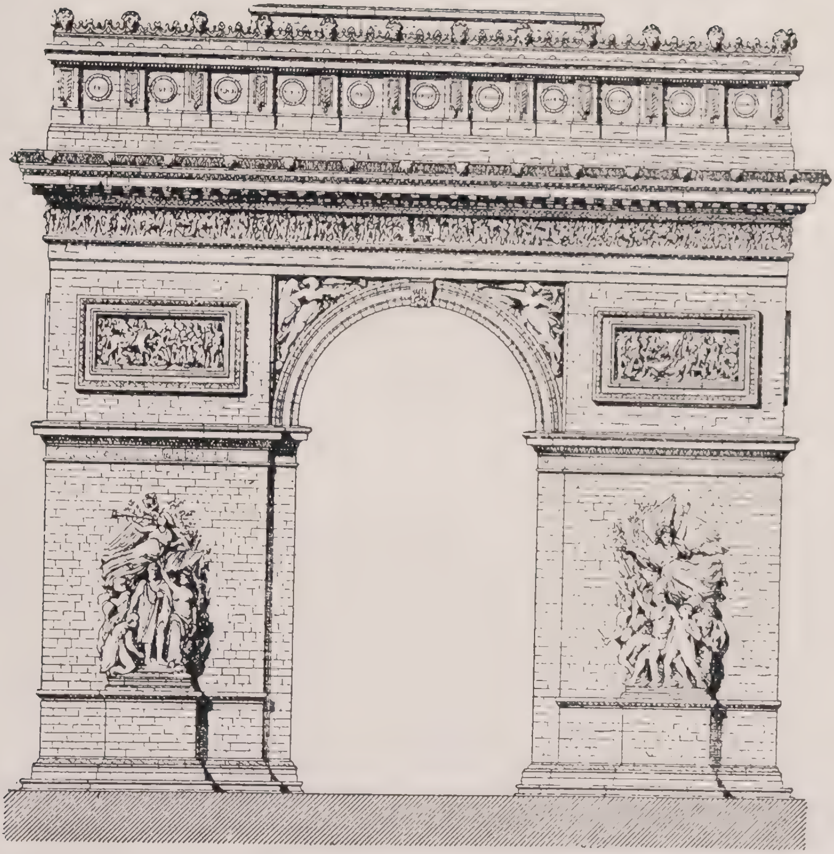


Fig 42 — Arc de Triomphe

From Guadet's "Principles of Architectural Composition."

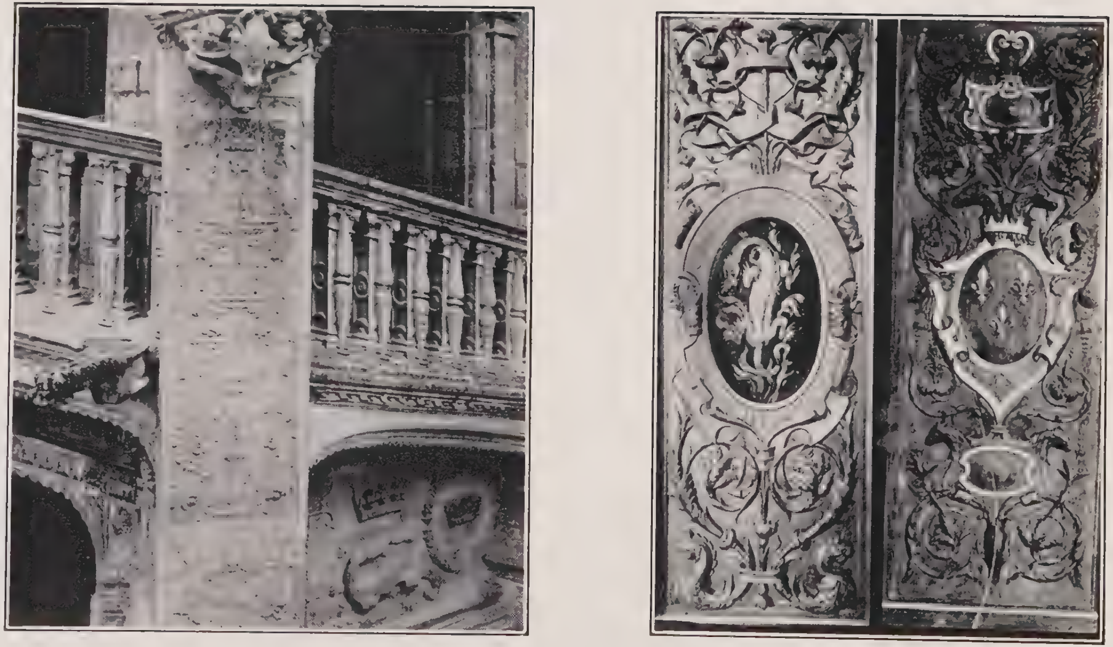


Fig. 43 — Francis I Ornament

such a contribution to the art. He will aim high enough if he sets out to use existing modes of ornament in an intelligent manner.

In this undertaking he will find that the situation is governed by the same principles that control the major elements of architectural composition.

Background, purpose, style, unity, balance, and emphasis will apply to the choice and disposition of ornament, as they did to mass, proportions, and material of buildings.

There is a further consideration with respect to ornament, however, than exists in general architectural design.

Ornament is more than a mere architectural perquisite. It is the product of craftsmanship, and as such is subject to the laws, not only of architecture, but of the particular craft which has produced it.

That craft may be the craft of the stone-cutter or carver, the wood-carver, the blacksmith, the iron monger, the modeler, the foundry man, the glass decorator, the painter, or any one of many others.

Here is a situation that calls for careful handling. No man can serve two masters, and if Architect and Craftsman are at odds, the result will suffer. The only proper relation between the two must depend upon the Architect's understanding of the Craftsman's art. The architect must understand not only the limitations of that art, but its best traditions and peculiar characteristics.

For instance, to detail a wrought iron balcony which cannot be done in wrought iron, but must be partly wrought and partly cast, and assembled with a thousand screws and bolts, is to fail lamentably in the production of proper ornament. Wrought iron is forged in certain definite ways, welded and erected according to a fixed method. The architect must know the manner of handling this material, before he can assist in designing it. His part should be an assisting part only, for no artisan who is an artist can do his best unless something of the creative side of the work is left to him.

In our day this balance between architect and artisan has been much upset. The architects have not only failed to acquaint themselves sufficiently with the craft which they are em-

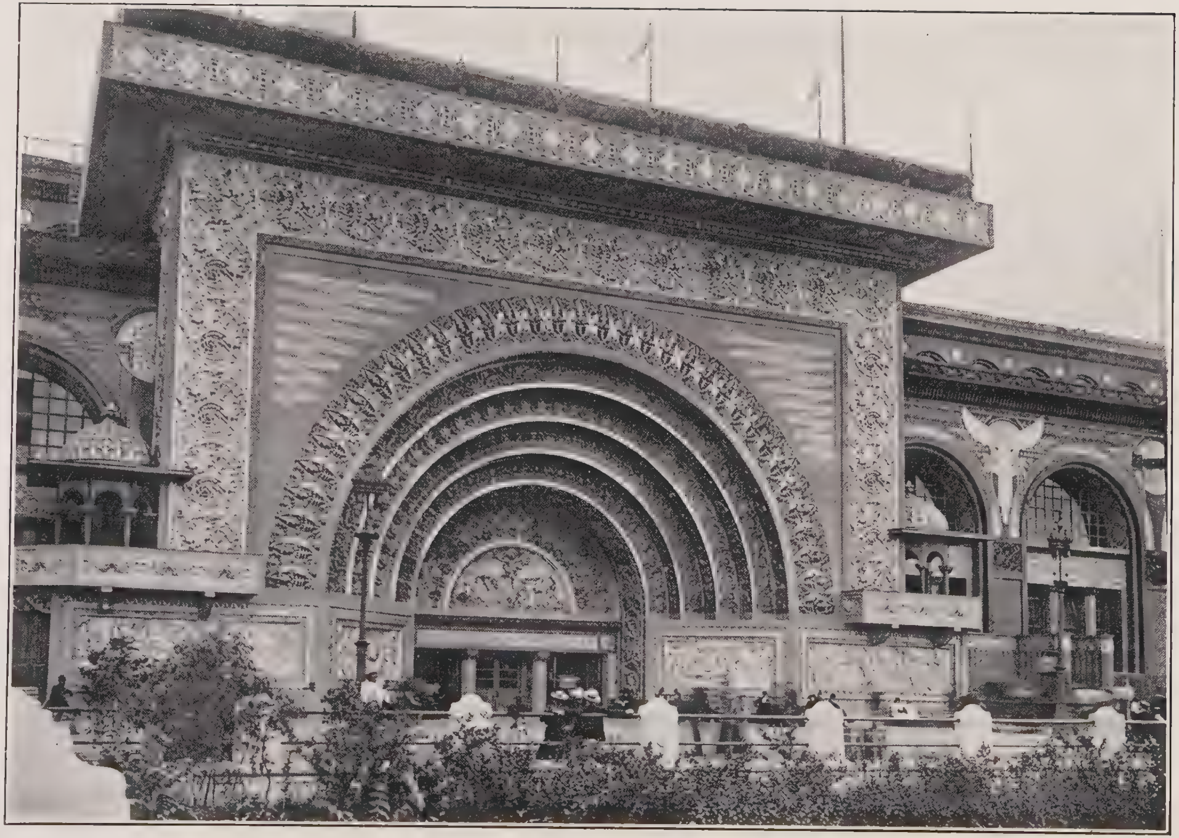


FIG. 44 — TRANSPORTATION BUILDING, CHICAGO FAIR

ploying to aid them, but they have delegated to still less experienced draughtsmen the design of the ornamental elements. The result has been that craftsmen have been forced to execute improper and discreditable travesties upon their art, at the instance and under the unintelligent direction of architectural corporations.

This has driven craftsmen of ability and understanding out of the field of coöperation with architects, much to the disadvantage of architecture.

Every course in architecture should include first hand study in the shops themselves of the work of the craftsmen. Furthermore, the habit of frequent visits of this kind should be continued after the student has become a practicing architect, and, if he delegates the privilege of designing or detailing ornament to his draughtsmen, he should see that they keep similarly informed as to the craft technique.

Such a program of coöperation and mutual understanding would result in cast iron that could be cast and that when cast would display the particular ornamental attributes that can be expressed in cast iron. It would result in forged work that would differ plainly from the cast ornament, and have qualities and excellencies of its own. It would result in stone carving that would be eloquent of the chisel and not a transcript of the modeler's clay. Nothing is more absurd than to model soft and voluptuous forms in plasticene and then turn them over to be slavishly imitated in granite or marble. Working at such a task, stone carvers become automatons, and the art languishes. The ornament may be suggested and blocked out in plaster, but the man who holds the chisel must be depended upon for a creative touch that will give character to the work and make it express something of his own sense of beauty as well as the architect's.

There is no greater problem today affecting architectural ornament than this problem of providing for the actual participation of the craftsman as a contributing artist in the creation of the building.

He has been so pitifully and so long subordinated to the whims and sophistries of paper architecture, that he cannot be expected at once to take upon his own shoulders the responsibility for design of ornamental members, but he can at least be

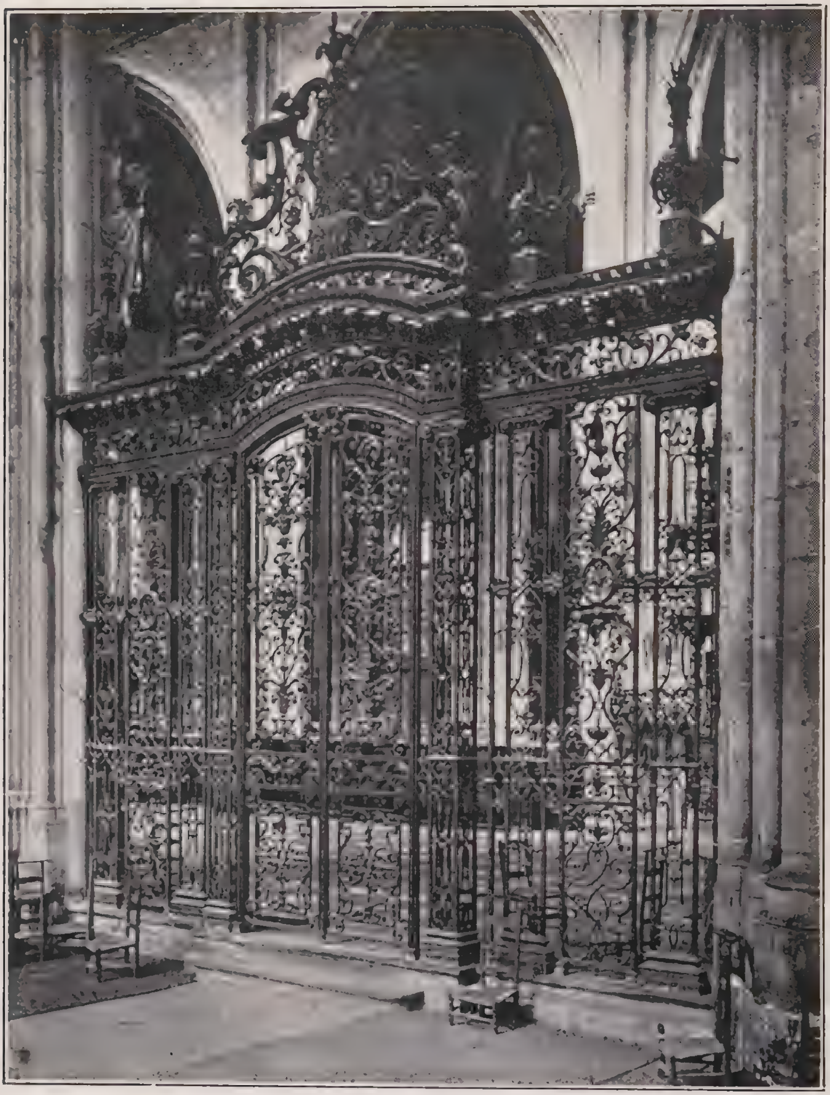


Fig. 45 — Wrought Iron, St. Ouen, Rouen

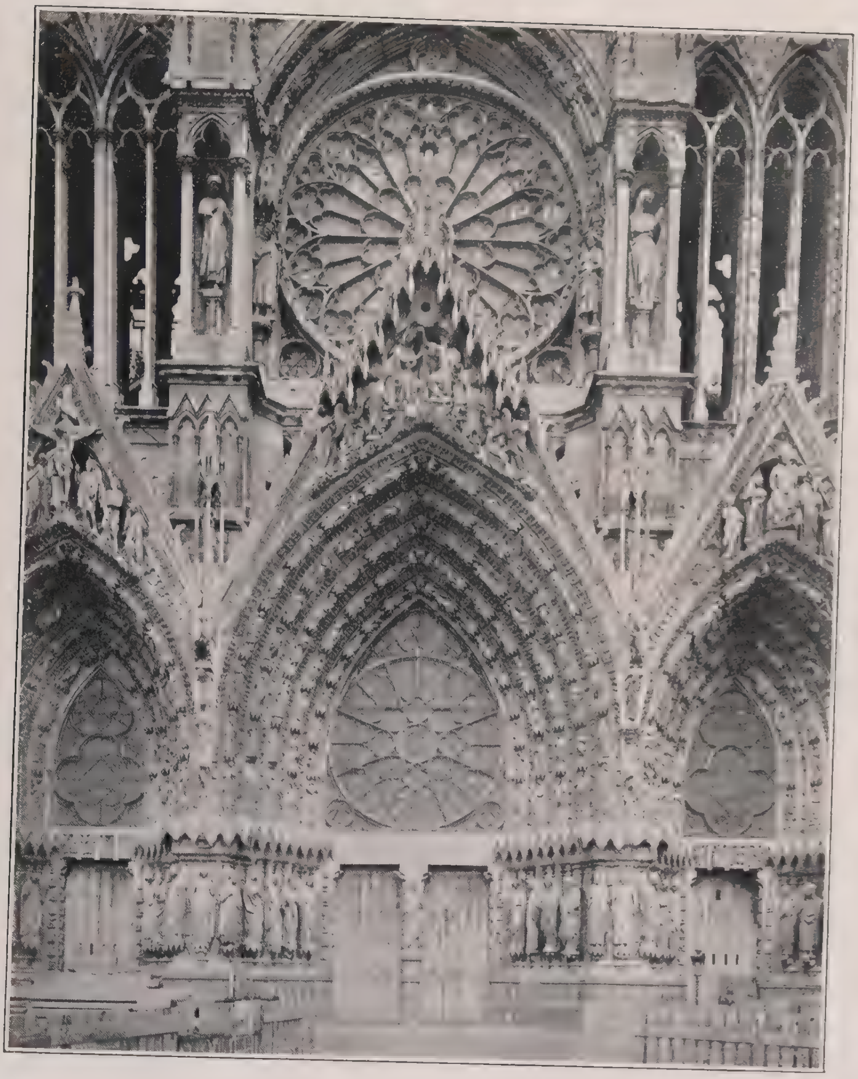


Fig. 46 — Portal, Rheims

given full sized details that are made with a sympathetic knowledge of the proper limitations of the material and the processes with which he, the craftsman, is obliged to work.

As far as ornament itself is concerned, it would therefore appear that, as it is to be the work of a craftsman who represents not architecture but his own minor art, it should be designed with a knowledge and respect of this art.

As to its disposition and use in the building, each style, each locality, each use, has its own rules. So long as the ornament follows these rules, and is in itself good, exhibiting quality rather than mere quantity, it will pass.

Ornament may be divided, for the purpose of a general survey, into a number of fields or classes: the classic, including the Renaissance, and the Gothic, both essentially based on stone, and the new ornament of color.

As used today the classic field, comprising first the orders, and then the various less structural items of decoration, wreaths, acanthus scrolls, enthemia, carved panels, vases and, sparingly, figures in the round. It is the basis of most of our work today. It is an ornament of superficial decoration, not affecting, but adorning, structural forms.

The column, a simple structural member in compression, is made to flower out at the top in the form of a capital. It is traced with lines parallel to its supporting length, to emphasize the strength of its verticality, and its base is girdled with encircling bands, denoting weight confined to a definite bearing point. The cornice again is structural, this time horizontal in its lines, and these lines are given a sparkling interest by an ornamentation skin-deep, running along the mouldings, or dividing the frieze into metopes.

This classic decoration is staid and elegant, following formal lines, and only incidentally affecting masses. It is typified in the design of McKim, Mead & White, shown on page 85.

The Gothic expresses itself in a different mood. It is deeper than superficiality, and is exultant rather than restrained and elegant. It uses a wider range of forms, and each of these forms is susceptible of infinite variation. It unites the form and the ornamentation in an intimate correlation, so that neither exists as a separate entity, but the entire form, rather, finds expression in decorative terms.

The portal of Rheims, shown herewith, exemplifies this character of stone ornament. Nothing of the structure appears as such, and yet all the ornament together forms a coherent and structural design.

In the small portion of the façade shown, comprising the central doorways of this church, there are perhaps about two hundred human figures in the round, more than can be found today in many a great city, from one end to the other of its myriad streets lined with great buildings of stone and brick!

Each one of these two hundred statuettes mentioned above is a different individual, expressing a particular thought. As we travel from one to another of our great cities, today, we find wherever we go the same old figures, reproduced ad nauseam from a few plaster casts of ancient or of modern sculpture.

In the field of ornament repetition of identical sculptured forms destroys the dignity and significance of the sculpture. As Despradelle used to say, in criticizing a student's design for a monumental façade, "One eagle is an eagle, many eagles pigeons."

The Gothic forms of ornament by their very flexibility and diversification, lend themselves to new methods of construction and novel architectural lines the more readily. The Tribune Building, the Woolworth Building and the Radiator Building are essentially Gothic in ornamentation. They express exuberance as embodied in the commercial enterprise of the 20th Century American.

Such exuberance is entirely in order in these commercial buildings, whereas the quiet dignity and respect of the votive monument is expressed, as in the Lincoln Memorial, in classic reserve.

There is a place for the Classic and another for the Gothic type of ornament.

The ornament of color which follows neither the classic nor the Gothic tradition, deserves more attention than it is getting. The façade architecture of our cities lends itself particularly to color treatment. Form is not enough. The streets, usually drab and sordid from the dullness of the original tones of the stone or brick, become almost mournful when soot and grime

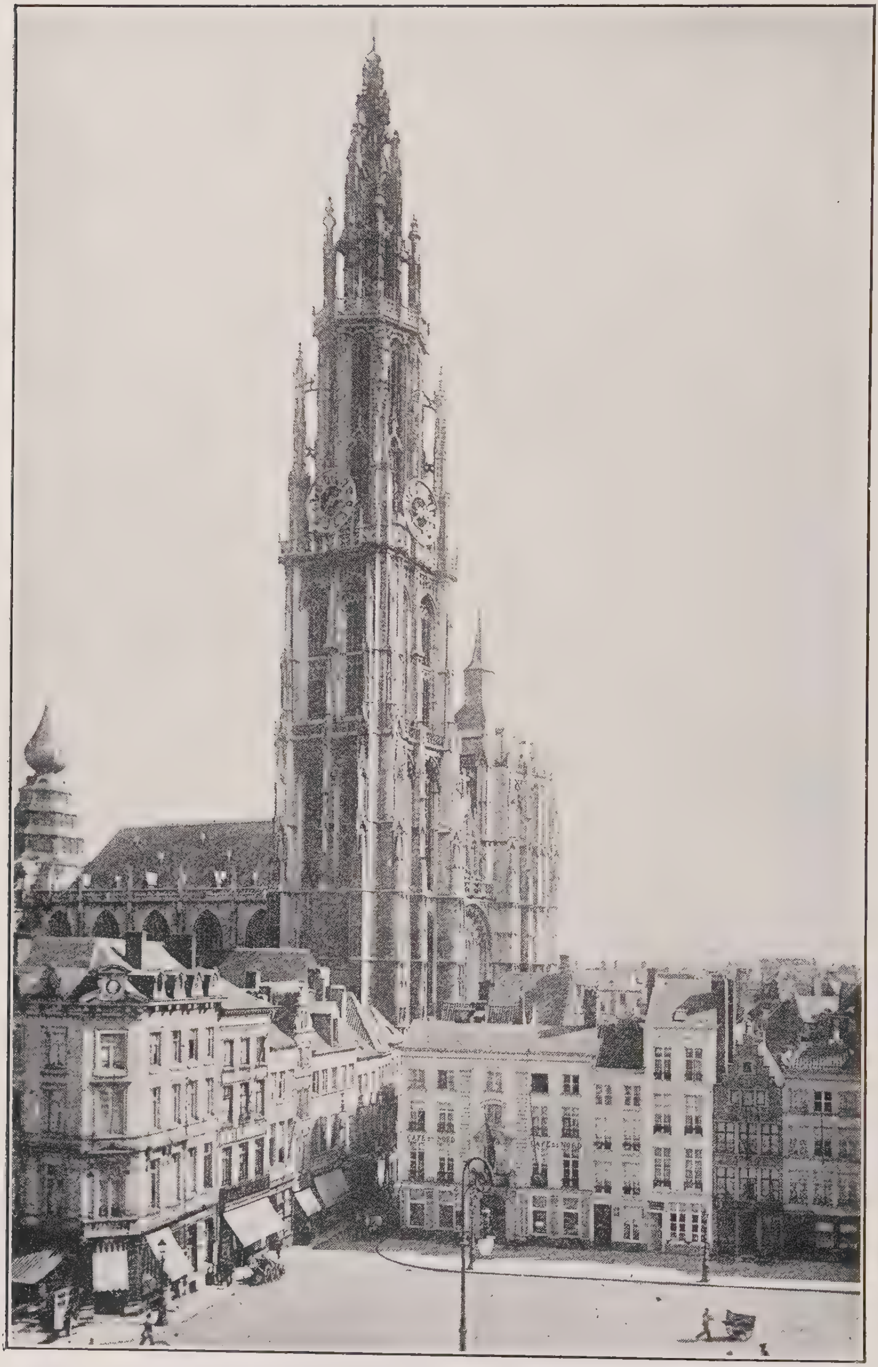


Fig. 47 — Antwerp Cathedral

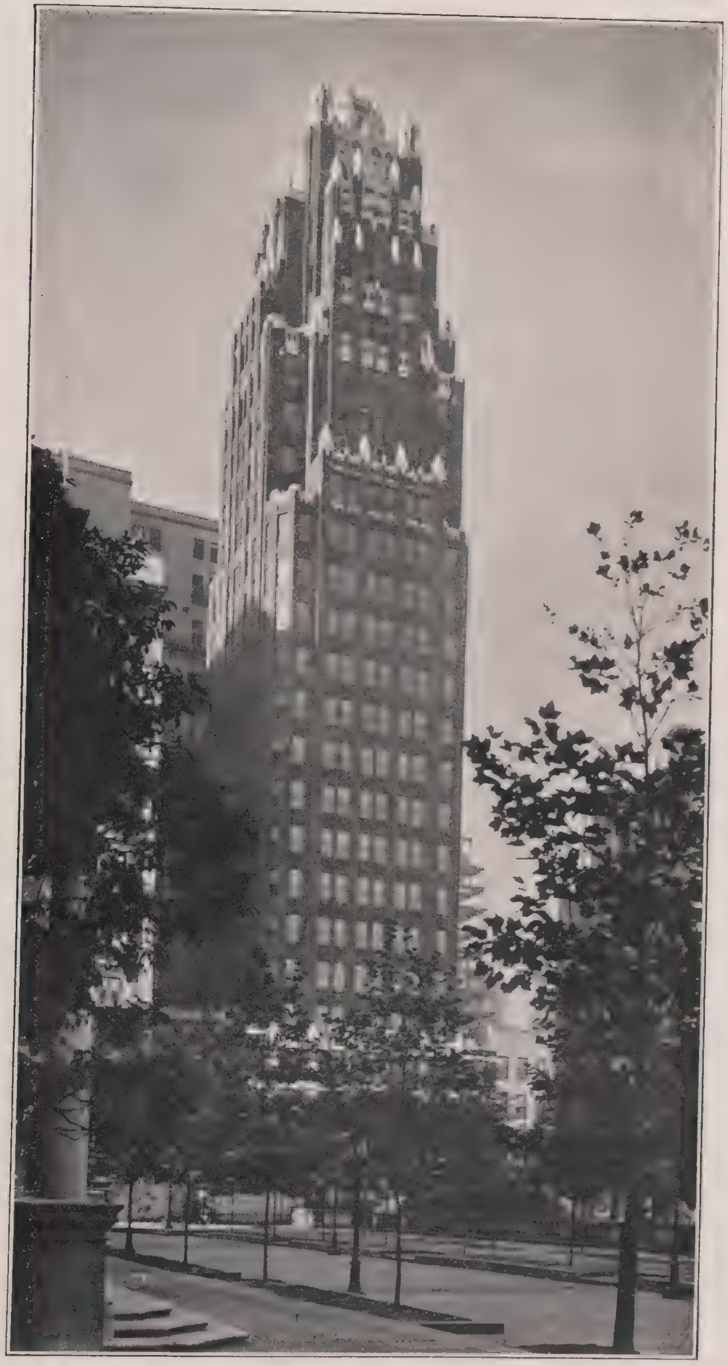


FIG. 48 — RADIATOR BUILDING, NEW YORK
Raymond M Hood, Architect

are added to almost every exposed surface. Under these conditions no color can be too cheerful, no tone too bright.

And so we are beginning an adventure in the art of color decoration. The Academy at Washington, the Art Museum at Philadelphia, the American Radiator Building in New York, and many another recent design, exhibit this tendency. It has precedent galore in the Byzantine and the Classic, in St. Marks and in Sienna, and throughout the land of the Moor and the Aztec, but it has not yet been fully developed in French, English, or American Architecture. The domes of Mexico stand out in a unique glory of color from the mass of common red brick and dirty grey stone that cover the rest of the continent of North America. They are a Challenge by the age of slavery and despotism to the new age of liberty and democracy.

SUMMARY

SO, as we trace the Elements of Architecture from their common inception in the instinct of man to give to every art a power to express his conception of beauty, through the long centuries of slow development in style and personality, and in racial and geographical individuality, we grow more clearly aware of the extreme complexity of our art and its philosophy.

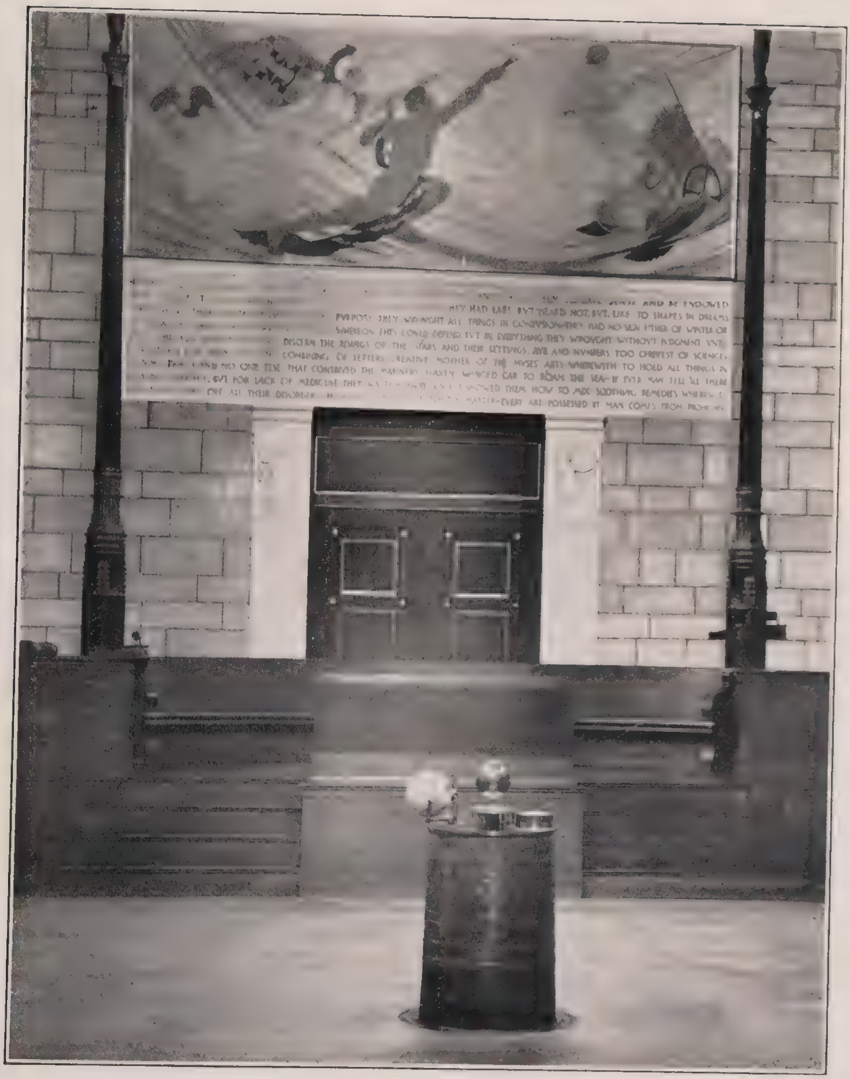
We find architecture occupying among the Fine Arts, a unique position, combining use and beauty, and including in its broad scope a hundred minor arts, some pure like itself, some descriptive.

We have been able to divide the Elements governing composition into the extrinsic and the intrinsic — background and content — and have placed a new and stronger emphasis on the first of these.

Indeed we have had our attention called to many features in the pattern of background. We have included among them geography, topography, tradition, history, civics, and sociology, all directly affecting architectural composition.

After background we have emphasized purpose, noticing that the word is in a measure synonymous with "design."

We have dwelt upon the importance of material in deter-


AND BE ENDOWED
HAD EARS BVT HEARD NOT, BVT, LIKE TO SHAPES IN DREAMS
PVRPOSE THEY WROVGHT ALL THINGS IN CONFVSION THEY HAD NO SIGN EITHER OF WINTER OR
WHEREON THEY COVLD DEPEND BVT IN EVERYTHING THEY WROVGHT WITHOVT IVDGMENT VNTIL
DISCERN THE RISINGS OF THE STARS AND THEIR SETTINGS. AYE AND NVMBERS TOO CHIEFEST OF SCIENCES
COMBINING OF LETTERS CREATIVE MOTHER OF THE MVSES ARTS WHEREWITH TO HOLD ALL THINGS IN
NO ONE ELSE THAT CONTRIVED THE MARINERS FLAXEN WINGED CAR TO ROAM THE SEA—IF EVER MAN FELL ILL THERE
BVT FOR LACK OF MEDICINE THEY
SHOWED THEM HOW TO MIX SOOTHING REMEDIES WHEREBY
OFF ALL THEIR DISORDER
MATTER—EVERY ART POSSESSED BY MAN COMES FROM PROMETHEVS

Academy of Arts and Sciences, Washington
B. C. Goodhue, Architect

mining architectural forms and styles, and have especially sought to discover what qualities of human interest in the material have made it significant to man.

We have adventured a theory of personality, as applied to buildings, and have analyzed this subtle quality as composed of four properties, — sincerity, propriety, style, and scale.

We have treated of all these vital matters before coming to a brief recapitulation of the generally accepted chief elements of design, namely unity, balance, and emphasis. Admitting the validity of these principles, we have flatly refused to adopt the conventional attitude toward "proportion," and have insisted that it is but a function of background, material, and style, and not an independent or determining element.

The problem of the Picturesque we have discussed, and explained that it is a quality borrowed from the painter's art not necessarily detracting from architecture, but independent, in a sense, of the fundamental principles underlying the latter art.

In the field of ornament we have touched upon the various classic schools and upon the individual cults, especially of the present moment. We have made a plea for a closer association between architects and craftsmen.

Our conclusions ought to be heartening. If we can agree to keep in mind a few very rudimentary principles, background, purpose, and material on the one hand, and unity, balance, and emphasis on the other, we shall have started right on the road to design. Then if we can maintain, along with our own favorite hobby in style, large catholicity of judgment with respect to the work of others, always admitting that there is some truth, despite books on composition, in the old line, "de gustibus non est disputandum," we shall have taken another long step toward our goal.

Finally if we can incorporate in our buildings some reflection of the sincerity of a mind and purpose thoroughly devoted to the great art of architecture, we shall have added to our creative work the subtlest and perhaps the finest attribute of a building, as it is of a man, — namely personality.

INDEX

Academy of Arts and Sciences at Washington, 114.
Aiguilles of France, 13.
Aix Chapel, 61.
American Mill Building, 29, 78.
American Radiator Building, 111, 114.
Amiens, 53.
Antwerp, 49, 82.
Arc de l'Etoile, 25, 80, 89, 100.
Architectural Personality, 35.
Architecture and Engineering, 11.
Art — Definition, 1.
Arts, the — Definition, 1.

Background, the, 17.
Balance, 51.
Bamborough Castle, 19.
Bank of England, 53.
Baptistry, Pisa, 59.
Bath, 53.
Beauty, definition, 12, 37.
Beffroi at Bruges, 82.
Bibber's Art, 7.
Bordeaux Theatre, 57.
Boston Public Library, 23, 53.
Bronze, 33.
Brooklyn Bridge, 11, 32.
Buddhist Temple, 49.
Burg Eltz, 49, 53, 65, 93.

Callicrates, 53.
Chaucer, 23.
Chantilly Stables, 63.
Chârtres, 53, 82, 84.
Chillon, 19.
Choragic Monument of Lysicrates, 25, 59, 87.
Circular Plan, 57.
City Architecture, 46.
Cleopatra's Needle, 25.
Cologne, 53.
Colonial Style, 42, 44, 89, 91.
Colosseum, 53, 75, 76, 80.
Columbia Library, 49.
Columbian Exposition, 34.
Column of Trajan, 25.
Compton Wynyates, 53.
Coucy-le-Chateau, 59.
Craftsman, 105.
Crescent and Circle at Bath, 53.

Dancing, 5.
Delineation, 5.
Description Fine Arts, 5, 8.
Doge's Palace, Venice, 75, 78, 80.
Drama, 5.
Dresden Theatre, 59.
Duomo of Florence, 49.
Durham, 49, 53, 82.
Dvorak, 22.

Educational Building, 44.
Eiffel Tower, 37.
Elements in Architectural Composition, 13.
Elks Memorial Building, 61.
Emphasis, 73.
Engineering, 11.
Engraving, 5.
Ephesus, 44, 91.
Etching, 5.

Farnese Palace, 57, 87.
Fine Arts, the, 5.
Flamen de Labrely, 8.
Flotow, 22.
Francis the First Style, 102.
Frozen Music, 5.

Geography, 17.
Georgian Style, 42.
Gold, 32.
Goodhue's Style, 102.
Gothic Style, 42.
Granite, 32.
Grant's Tomb, 55.
Greek Gymnastics, 6.

Hagia Sophia, 49, 57.
Halicarnassus, 49, 55.

Harvard Yard, 43.
Haye Sainte, 19.
Hermes of Praxiteles, 33.
Historical Background, 19.

Iron, 32.
Ironwork, 40.
Ivory, 33.

Kaleidoscope, 7.

Laocoön, 46.
Leaning Tower of Pisa, 59, 75, 76, 80.
Limestones, 32.
Lincoln Cathedral, 53.
Lincoln Memorial, 25, 49, 53, 63, 80, 111.
Literature, 5.
Loch Katrine, 19.
Louvre, 57.

Maple, 33.
Marble, 32.
Materials, 31.
Mausoleum, Castle Howard, 59.
Melody in Odors, 8.
Metals, 31.
Midas, 22.
Milan Cathedral, 82.
Mona Lisa, 6.
Morgan, House of, 53.
Mt. St. Michel, 19, 32, 49, 65.
Music, 5.

New York Post Office, 57.
Norman Style, 42.
Notre Dame de Paris, 24, 49, 53, 82.
Noyes, Alfred, The Strange Guest, 95.

Odeon at Athens, 57.
Ornament, 97.
Oxford, 53.

Painting, 5.
Palace of the Dalai, 19.
Pantheon at Rome, 49, 59, 61.
Parthenon, 20, 49, 75, 89, 91, 100.
Paris Bourse, 53.
Peking, Palace, 53.
Personality, 35.
Peterborough Cathedral, 82.
Petit Trianon, 49, 63.
Phidias, 33.
Picturesque, the, 93.
Pilgrims, 39.
Pittsburg Memorial, 55.
Poetry, 5.
Pollard Oaks, 33.
Polygonal Plan, 61.
Propriety, 35.
Provincetown, 38.
Pure Fine Arts, 5, 8.
Purpose, 25.
Pyramids, 49, 75, 78.

Radcliffe Library, 59.
Rheims, 49, 53, 111.
Roinard, Paul, 8.
Romanesque Style, 42.
Roman Style, 42.
Rotunda, Parc Monceau, 59.
Rotunda, Southern France, 87.
Rouen, 53.
Ruskin, John, 17.
Russian Mosque, 59.

Salamanca, 49.
Salisbury, 53.
Santa Maria at Genoa, 57.
Santa Maria della Croce at Crema, 59.
Santa Maria della Salute, 61.
Scale, 35.
Scottish Rites Temple, 55.
Scriabin, 8.
Sculpture, 5.
Shakespeare, 22, 23.
Sienna, 114.
Silver Screen, 6.
Sincerity, 35.
Song of Solomon, 6.
Square Plan, 55.
Stael, Madame de, 5.
Stone, 32.
Stonehenge, 25.
Stradivarius, 34.
Sullivan, Louis, 102.
Summary, 114.
Style, 35.
St. Brides, London, 84.

St. Giles's, 53.
St. Mark's, 114.
St. Mary's, Taunton, 82.
St. Paul's, 53.
St. Peter's at Rome, 57, 100.
St. Vitale, Ravenna, 61.

Taj Majal at Agra, 28, 49, 53, 57.
Tchaikowsky, 22.
Tempietto, Bramante's, 59.
Terra Cotta, 33.
Theater of Marcellus, 87.
Tribune Building, 111.
Trocadero, 59.

Unity, 45.

Venus of Melos, 6, 33.
Versailles, 37, 63.
Vesta, Temple of, at Tivoli, 59.
Vignola, 44.

Washington Monument, 37.
Williamsburg Bridge, 11.
Winter Circus, 59.
Woods, 33.
Woolworth Tower, 84, 111.
Wrestlers, the, 46.

Zeus, 33.

Van Nostrand's Architectural Books

CONSTRUCTION DRAWING: A Textbook of Architectural Drawing for the Building Trades. *By* Joseph Brahdy, *Brooklyn Vocational School, author of "Blue Print Reading for the Machine Shop and Related Trades," and* Samuel Landsman, *Brooklyn Vocational School.* $2.50

PERSPECTIVE: An Elementary Textbook. *By* Ben J. Lubschez, *F.A.I.A. Fourth Edition. Second Printing.* $2.00

THE ART OF LETTERING. With ninety-six full page plates. *By* Carl L. Svensen, *Professor of Engineering Drawing, Texas Technological College, author of "Essentials of Drafting," "Drafting for Engineers," "Mechanical Drawing," "Machine Drawing," "A Handbook of Piping."* $3.50

ARCHITECTURAL IRON DESIGN AND DETAILING. As required by the laws of New York. *By* Daniel M. Driscoll, *Instructor in Ornamental Iron Detailing, Mechanics Institute, N. Y. City.* With an introduction by Louis Rouillion, *Director, Mechanics Institute, N. Y. City.* $4.00

Complete descriptions and examination copies sent upon request.

D. VAN NOSTRAND COMPANY, Inc.
Eight Warren Street New York

EVINSON'S
HE
OK
TORE
RAMENTO

W8-CEW-671